City Of Seattle

STANDARD

PLANS

for

Municipal Public Works

Construction

1970

Ninth Edition

DIVISION SEVEN – STANDARD PLANS

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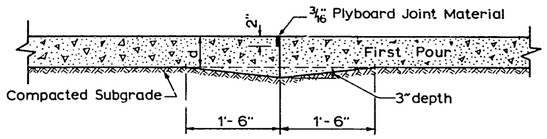
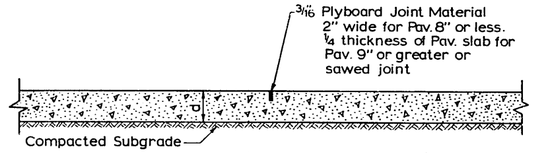
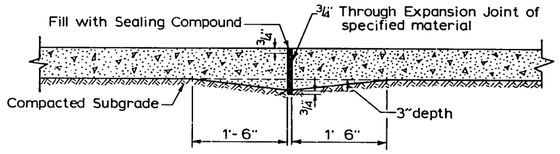
Standard Plan No. 101



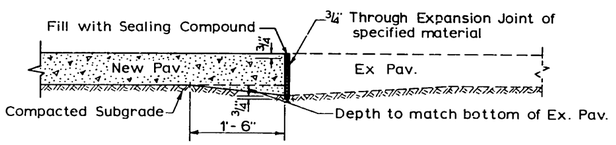
Construction Joint
Longitudinal or Transverse



Contraction Control Joint
Longitudinal or Transverse



Expansion Joint
New Construction



Expansion Joint
Between Old & New Construction

DO NOT SCALE

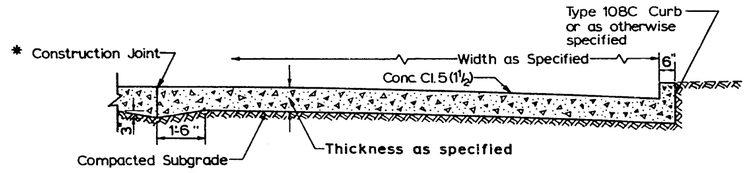
Revised 4-5-67

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

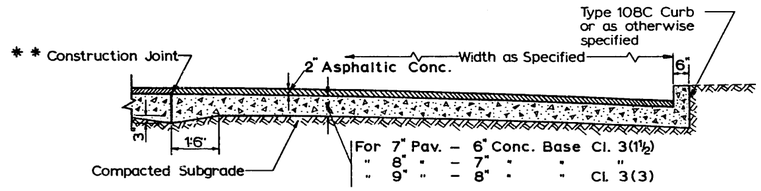
Types of Joints
for Concrete Pavement

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

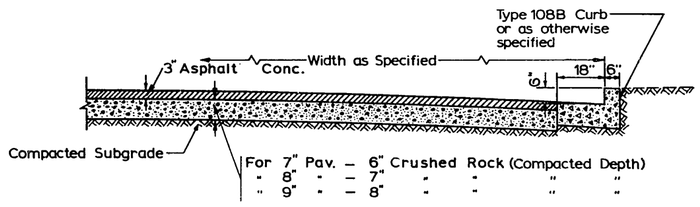
Standard Plan No. 102



102 A - Cement Concrete Pavement



102 B - Asphalt Concrete on Cement Concrete Base



102 C - Asphalt Concrete on Crushed Rock Base

* Construction Joint when roadway is paved in two or more lanes.
Contraction Joint when entire roadway width is paved in single operation.

* * Construction Joint when base is placed in two or more lanes.

For spacing of Construction or Contraction Joints see Std. Specs. Sec. 39-3.18.

DO NOT SCALE

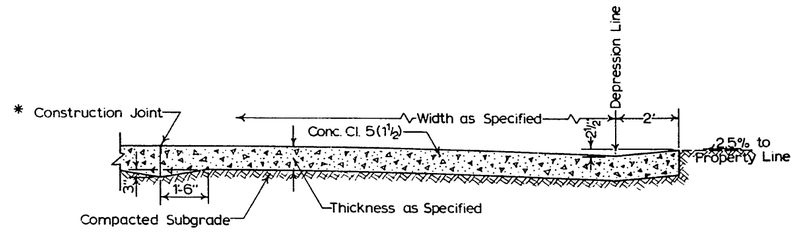
Revised 5-1-70
Revised 1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

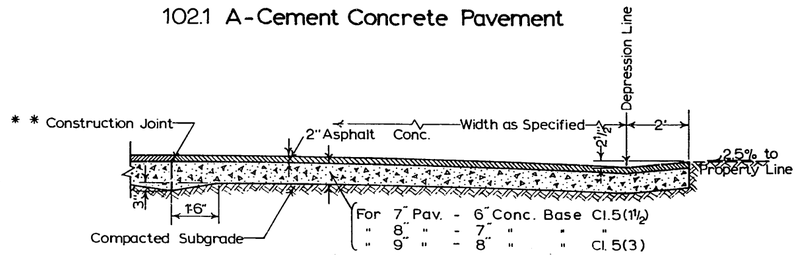
Arterial Pavement Sections

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 Gill Mayes CHAIRMAN
ATTEST: E. Skilling SECRETARY

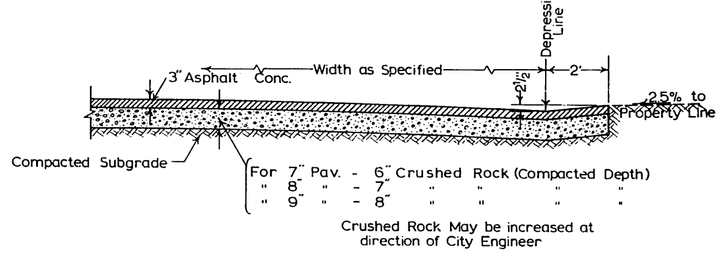
Standard Plan No. 102.1



102.1 A - Cement Concrete Pavement



102.1 B - Asphalt Concrete on Cement Concrete Base



102.1 C - Asphalt Concrete on Crushed Rock Base

* Construction Joint when roadway is paved in two or more lanes.
Contraction Joint when entire roadway width is paved in single operation.

* * Construction Joint when base is placed in two or more lanes.

For spacing of Construction or Contraction Joints see Std. Specs. Sec. 39-3.18.

DO NOT SCALE

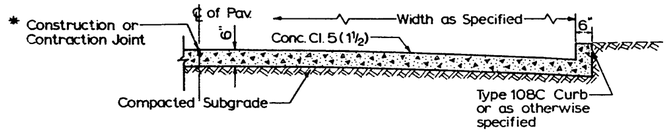
Revised 1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

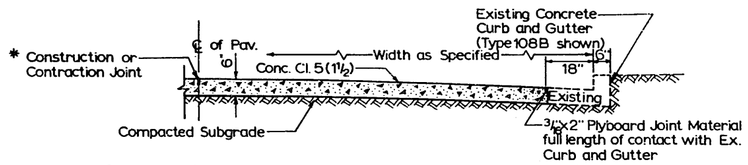
Industrial Pavement Sections

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 Gill Mayes CHAIRMAN
ATTEST: E. Skilling SECRETARY

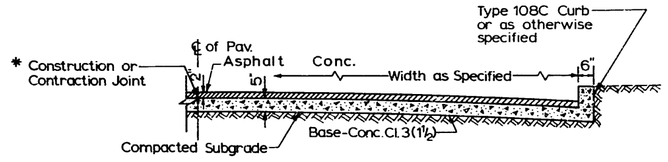
Standard Plan No.103



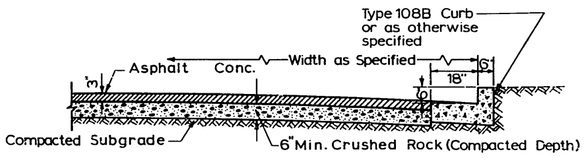
103A-Cement Concrete Pavement with Integral Curb



103B-Cement Concrete Pavement, Curb and Gutter Existing



103C-Asphalt Concrete on Cement Concrete Base



103D-Asphalt Concrete on Crushed Rock Base

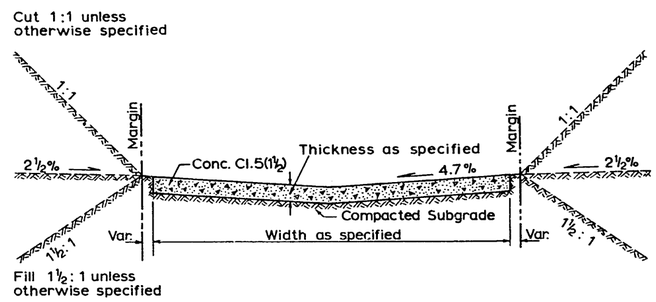
For spacing of Construction or Contraction Joints See Std. Specs. Sec. 39-3.18.

* When Construction Joint thickened edge required.

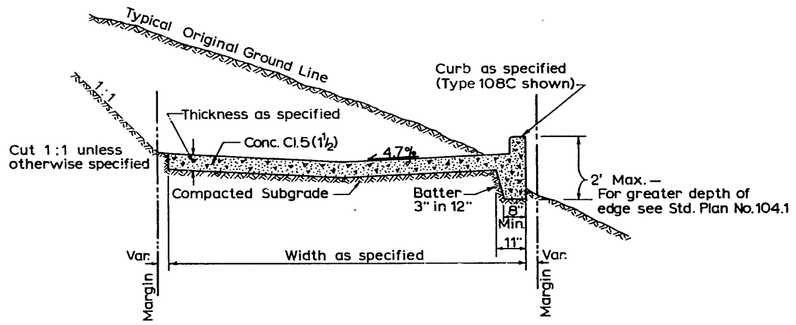
DO NOT SCALE

Revised 5-1-70	CITY OF SEATTLE
Revised 1-6-65	DEPARTMENT OF ENGINEERING
	Residential Pavement Sections
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 — CHAIRMAN; ATTEST: — SECRETARY

Standard Plan No.104



104 A-Cement Concrete Alley Pavement



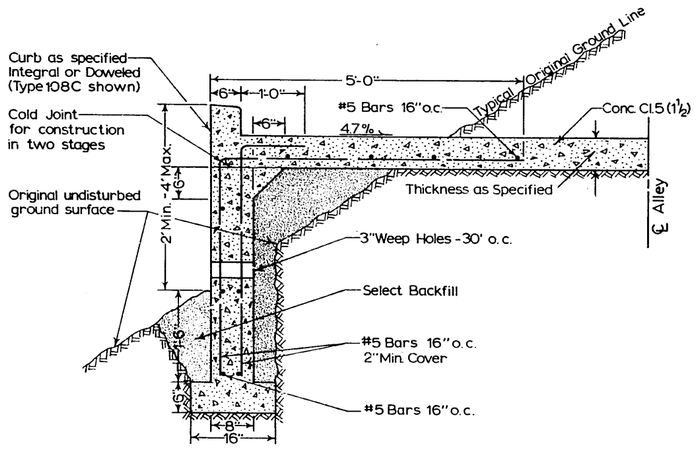
104B-Cement Concrete Alley Pavement For Shallow Embankment Area

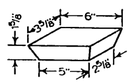
Note:
When alley pavement is 18' or wider place contraction joint along centerline of alley.

DO NOT SCALE

Revised 5-1-70	CITY OF SEATTLE
	DEPARTMENT OF ENGINEERING
	Cement Concrete Alley Pavements
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 — CHAIRMAN; ATTEST: — SECRETARY

Standard Plan No.104.1





Base of Support Wall to be bearing on firm undisturbed earth.

Back form for Support Wall may be omitted and concrete placed against native earth when ground conditions permit.

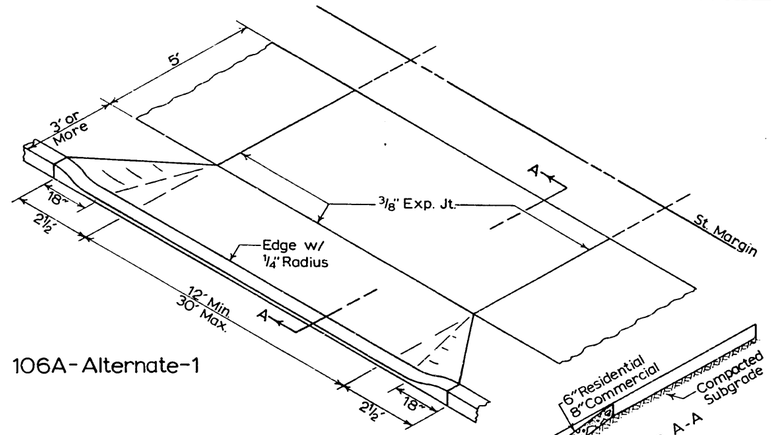
Cold joint, when construction is not integral with alley slab, shall be at level with base of alley pavement slab, with Shear Key indentations spaced 18" on centers.

Beveled block for forming Shear Key in wall section to be made from standard 2"x4"x6" wood or other suitable material.

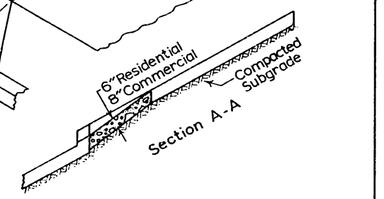
DO NOT SCALE

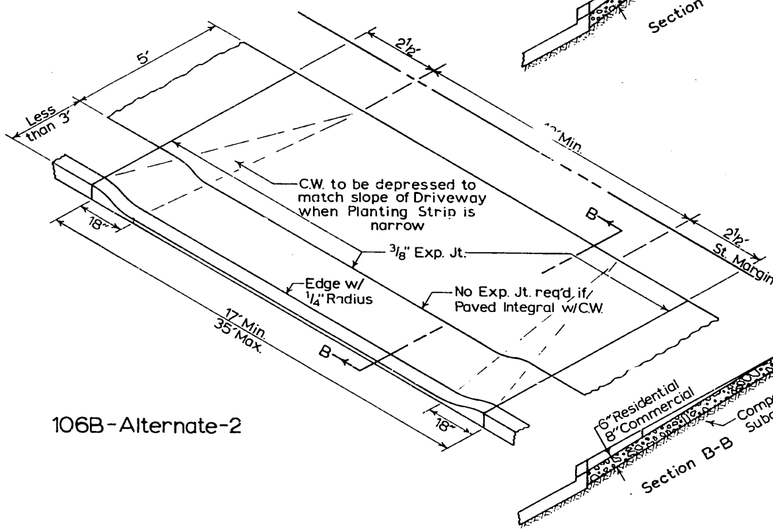
Revised 5-1-70	CITY OF SEATTLE	
Revised 4-5-67	DEPARTMENT OF ENGINEERING	
	Cement Concrete Alley Pavement with Support Wall	
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 CHAIRMAN	
	ATTEST: SECRETARY	

Standard Plan No. 106



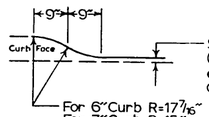
106A - Alternate-1





106B - Alternate-2

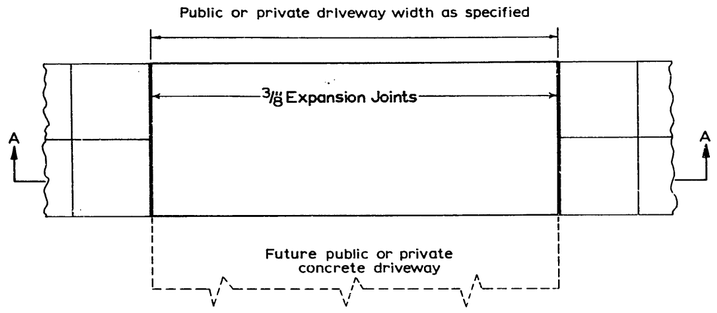
Conc. Cl. 5(1½) or Cl. 5(¾) at Contractor's option

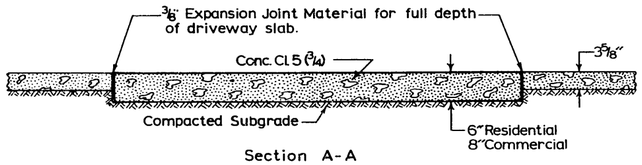


DO NOT SCALE

Revised 5-1-70	CITY OF SEATTLE	
	DEPARTMENT OF ENGINEERING	
	Type 106 Driveway	
	APPROVED BY THE BOARD OF PUBLIC WORKS 4-5 1967 CHAIRMAN	
	ATTEST: SECRETARY	

Standard Plan No.107



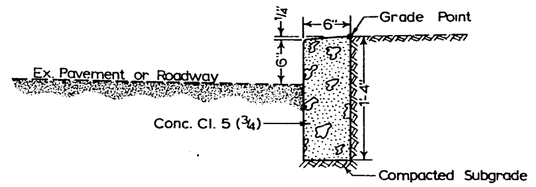


Section A-A

DO NOT SCALE

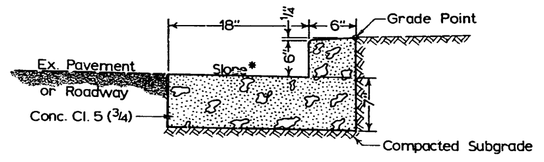
Revised 5-1-70	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Concrete Driveway Placed With Sidewalk Construction
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 CHAIRMAN ATTEST: SECRETARY

Standard Plan No.108

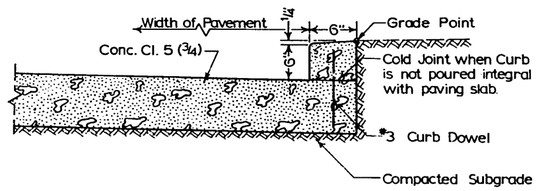


108A Curb

(For Monolithic Curb and Sidewalk See Std. Plan No. 114.1)



108 B-Curb and Gutter



108C Curb

For Type 108A Curb placed along edge of existing pavement 3/16" Expansion Joints shall be placed for full depth of curb to match location of joints in existing pavement.

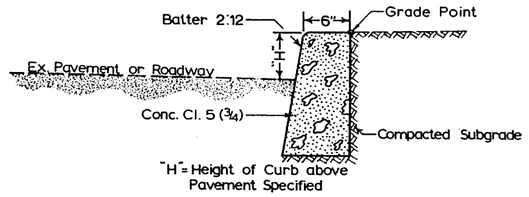
*Gutter shall be sloped the same as adjacent pav.

For spacing of Contraction Joints see Std. Specs. Sec. 40-3.01F

For Curb Dowels see Std. Specs. Sec. 39-3.15

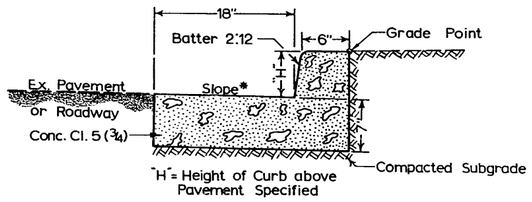
DO NOT SCALE

Revised 5-1-70 Revised 4-5-67	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Type 108 Curbs
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 CHAIRMAN ATTEST: SECRETARY

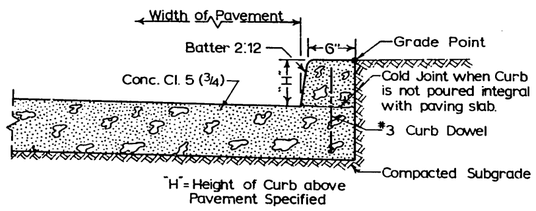


110A Curb

(For Monolithic Curb and Sidewalk See Std. Plan No.114.1)



110 B-Curb and Gutter



110C Curb

For Type 110A Curb placed along edge of existing pavement 3/16" Expansion Joints shall be placed for full depth of curb to match location of joints in existing pavement.

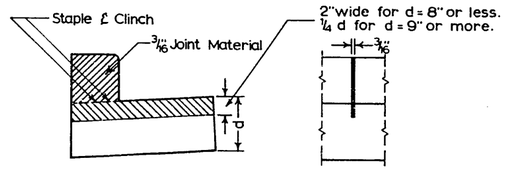
* Gutter shall be sloped the same as adjacent pav.

For spacing of Contraction Joints see Std. Specs. Sec. 40-3.01F

For Curb Dowels see Std. Specs. Sec. 39-3.15

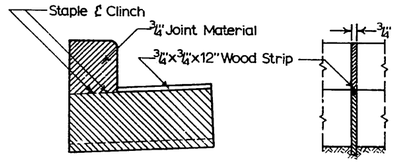
DO NOT SCALE

Revised 5-1-70 / 4-5-67	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Type 110 Curbs
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 CHAIRMAN ATTEST: SECRETARY



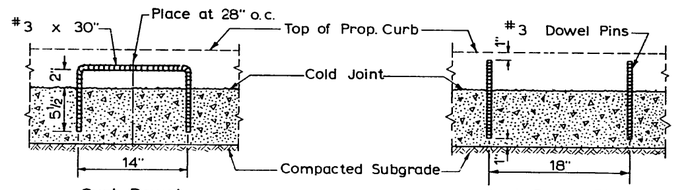
Contraction Joint For Type B Curb or Curb & Gutter

Other Types of Curbs Vary According to Required X-Section



Expansion Joint For Type B Curb or Curb & Gutter

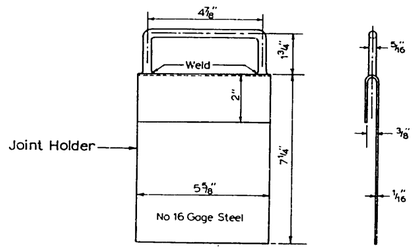
Other Types of Curbs Vary According to Required X-Section



Curb Dowel
For Residential Pavement with a Curb Height of 6"

Curb Dowel Pins
For Arterial Pavement with a Curb Height of 9" or Greater

Dowels For Dowelled Curb Construction

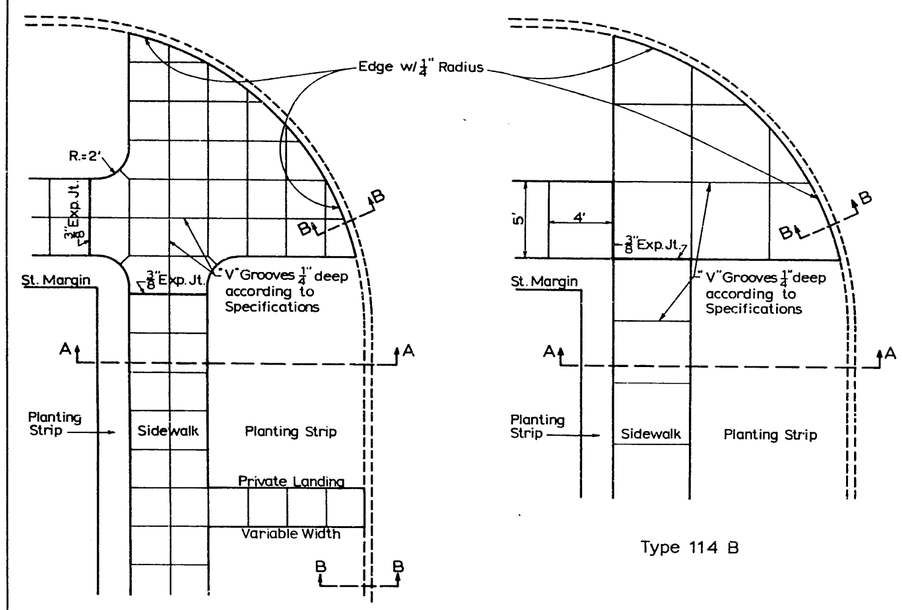


Details as shown for Type 108 Curb.
Cut Joint Material to match Type 110 Curb.

DO NOT SCALE

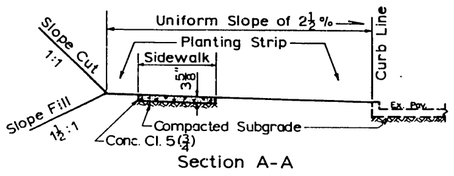
Revised 5-1-70 / 4-5-67	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Joints and Curb Dowels
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 CHAIRMAN ATTEST: SECRETARY

Standard Plan No. 114

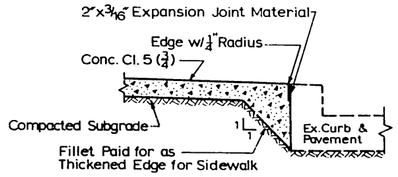


Type 114 A

Type 114 B



Section A-A



Section B-B

DO NOT SCALE

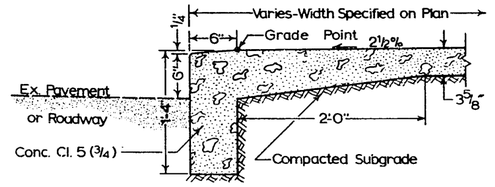
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Sidewalk Details

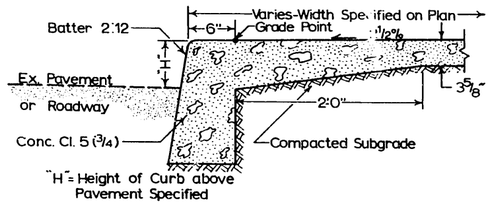
APPROVED BY THE BOARD OF PUBLIC WORKS
4-5, 1967 CHAIRMAN
ATTEST: SECRETARY

Revised 5-1-70

Standard Plan No. 114.1



114.1 A-Type 108 Curb



114.1 B-Type 110 Curb

Vertical Backface of Curb shall be formed against native earth where practical, otherwise by Backform left in place.

Surface marking of C.W. begins from longitudinal Curb marking 6" from Face of Curb.

DO NOT SCALE

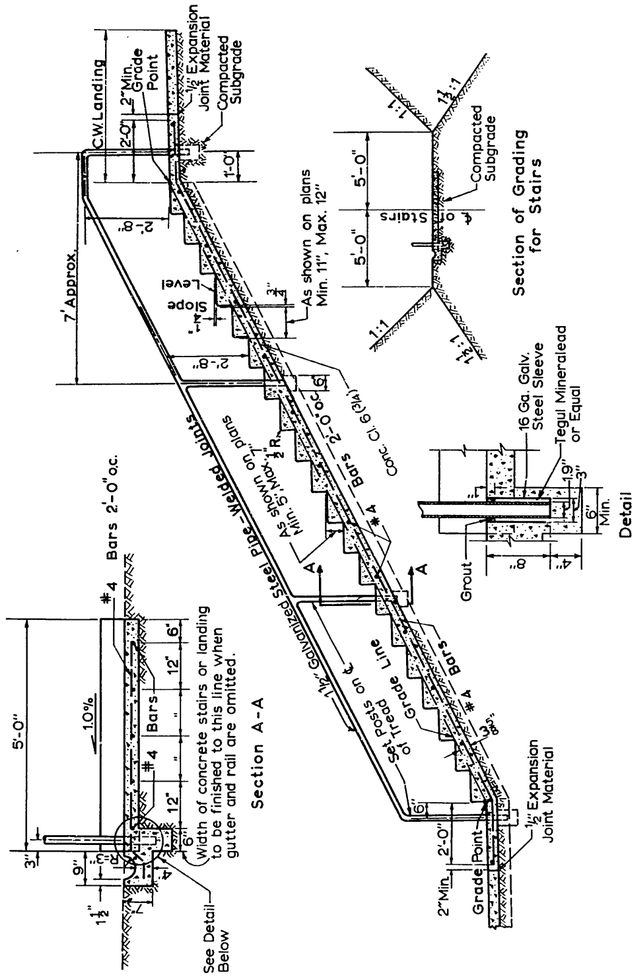
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Monolithic Curb and Sidewalk

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Revised 5-1-70
Revised 4-5-67

Standard Plan No.115



DO NOT SCALE

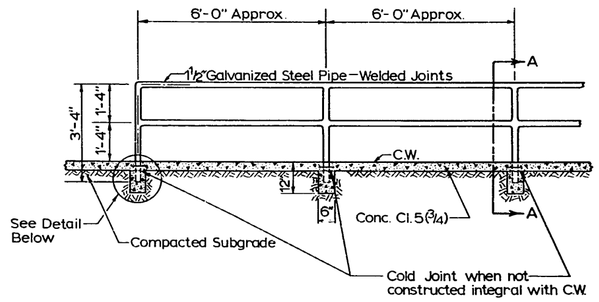
Revised	5-1-70
Revised	4-5-67
Revised	1-6-65

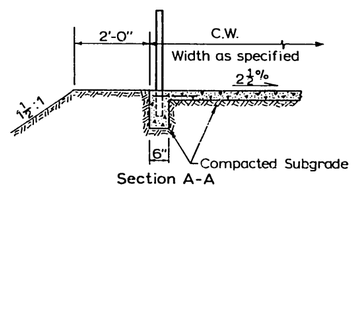
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

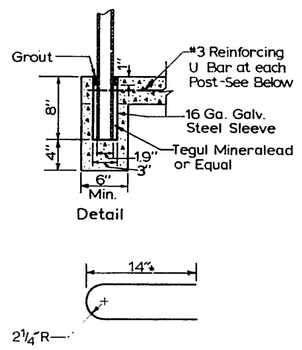
Cement Concrete Stairway Construction Details

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964
CHAIRMAN
ATTEST: SECRETARY

Standard Plan No. 116







DO NOT SCALE

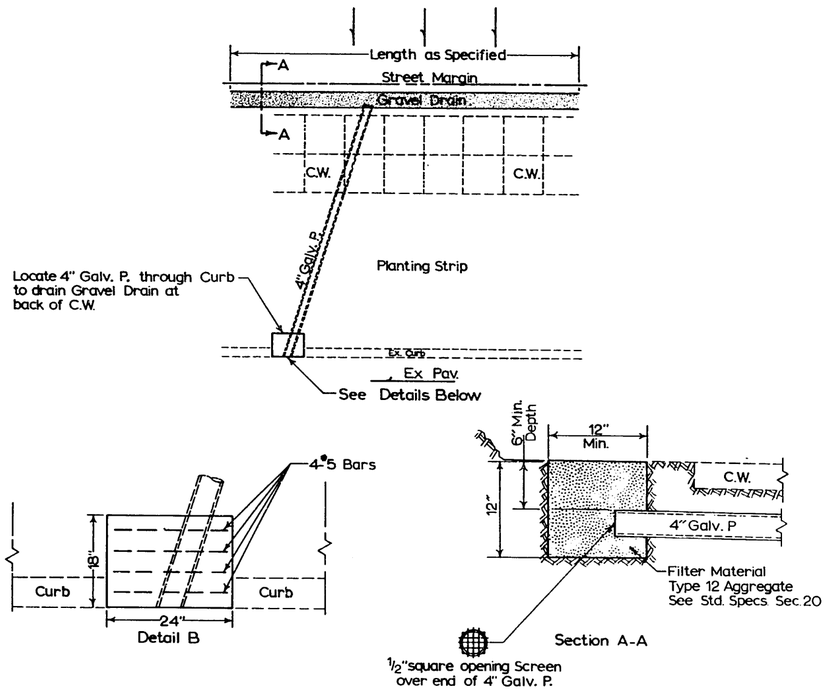
Revised	5-1-70
Revised	4-5-67
Revised	1-6-65

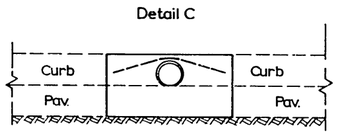
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

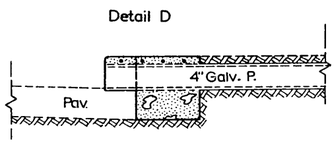
Steel Pipe Handrail Construction Details

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964
CHAIRMAN
ATTEST: SECRETARY

Standard Plan No. 117







When Curb is existing remove and replace as shown.

DO NOT SCALE

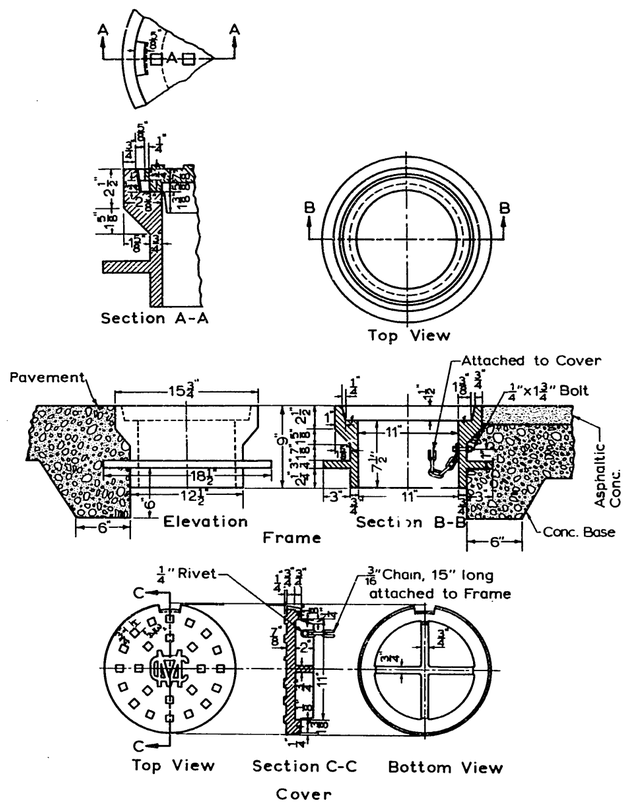
Revised	5-1-70
Revised	4-5-67
Revised	1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Sidewalk Drain

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 6, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No.118



Frame and Cover shall be tested for accuracy of fit and shall be marked in sets for delivery. See Std. Specs. Sec. 113.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63.208.

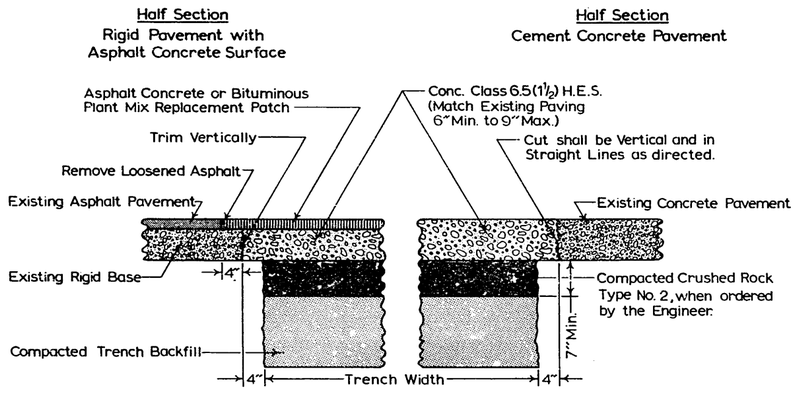
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

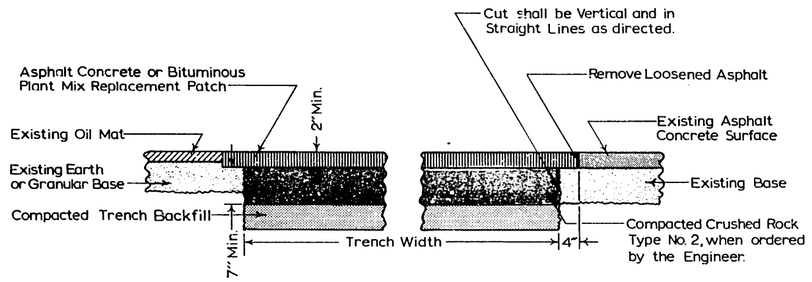
Monument Case

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 6, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No. 121



Typical Patch for Rigid Pavement

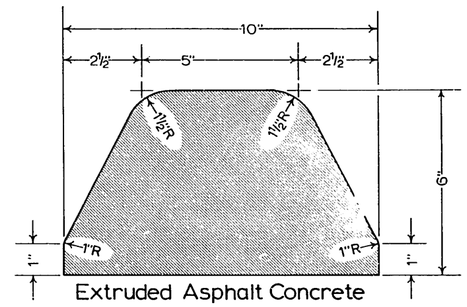


Typical Patch for Flexible Pavement

DO NOT SCALE

Revised 5-1-70 Revised 4-5-67	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Pavement Patching
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 D. M. Morse CHAIRMAN ATTEST: E. A. Thomas SECRETARY

Standard Plan No. 122

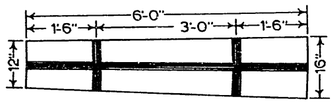


Extruded Asphalt Concrete

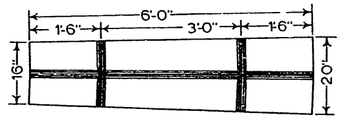
DO NOT SCALE

CITY OF SEATTLE DEPARTMENT OF ENGINEERING
Type 122 Curb Extruded Asphalt Concrete
APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 D. M. Morse CHAIRMAN ATTEST: E. A. Thomas SECRETARY

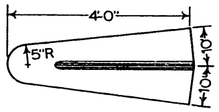
Standard Plan No. 123



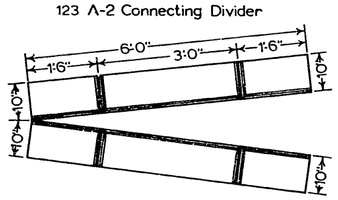
123 A-1 Connecting Divider



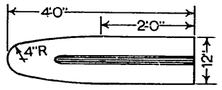
123 A-2 Connecting Divider



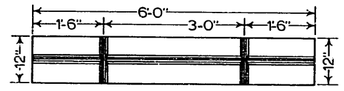
123 A Nosing



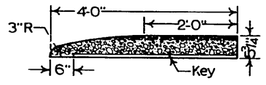
123 A Straight Section



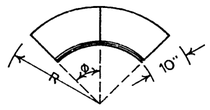
123 C Nosing



123 C Curb

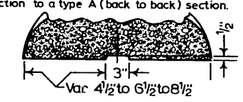


Section A & C Nosing

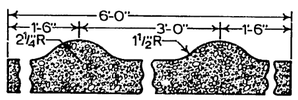


123 A Radial Curb
See Table Below Left

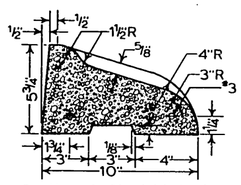
The main body of the curb and the longitudinal rib shall form a uniform transition from a type C section to a type A (back to back) section.



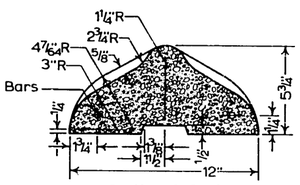
Section-A Connecting Dividers



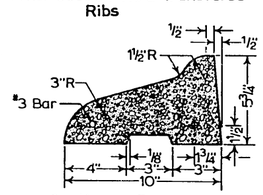
Longitudinal Section Thru Transverse Ribs



Section-A Straight Curb



Section-C Curb



Section-A Radial Curb

DO NOT SCALE

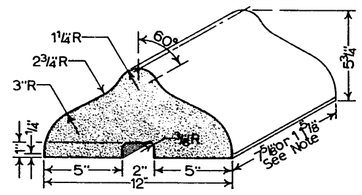
123 A Radial Curb		
Unit	Radius	Curb Return Angle (φ) Multiple
R1	1'-3"	45°00'
R2	1'-10"	30°00'
R3	2'-6"	22°30'
R4	5'-0"	11°27.54'
R5	10'-0"	5°43.77'
For Radii greater than 10' use segments of straight curb.		

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

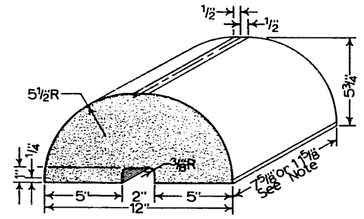
Type 123 Traffic Curbs
Precast Cement Concrete

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

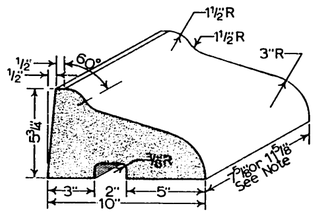
Standard Plan No. 124



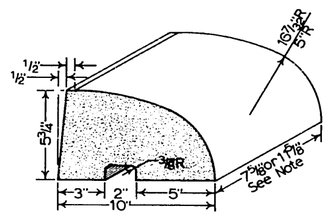
124 C-Block



124 C-Reflector Block



124 A-Block



124 A-Reflector Block

With 7 5/16" Blocks every sixth Block may be a Reflector Block or as otherwise specified.

With 11 5/16" Blocks every fourth Block may be a Reflector Block or as otherwise specified.

DO NOT SCALE

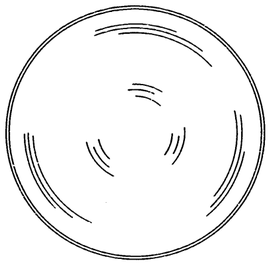
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

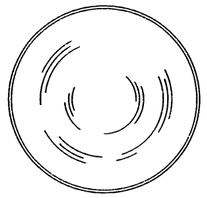
Type 124 Traffic Curbs
Block-Precast Cement Concrete

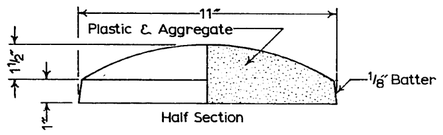
Revised 5-1-70

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

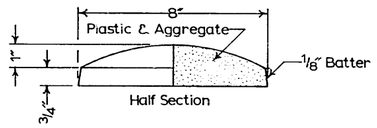
Standard Plan No. 125



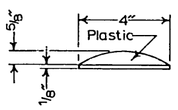




Type 125A
11" Plastic Button



Type 125B
8" Plastic Button



Type 125C
4" Lane Marker

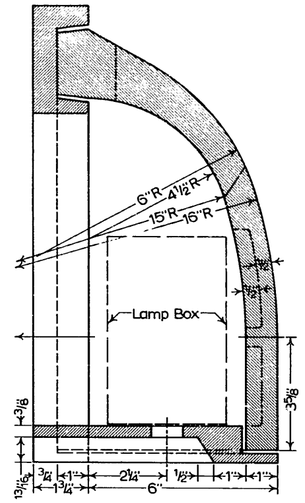
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

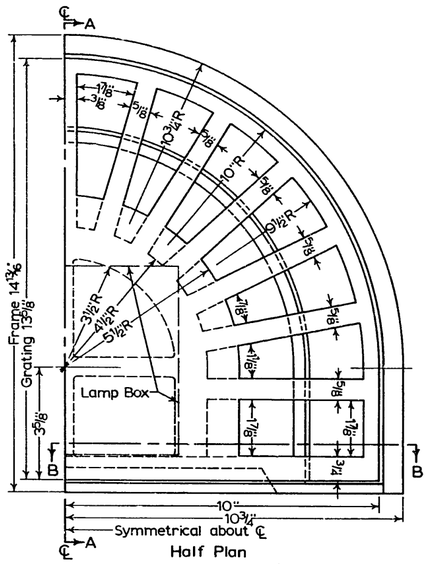
Type 125
Traffic Buttons

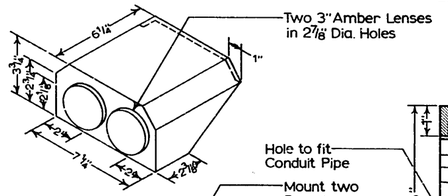
APPROVED BY THE BOARD OF PUBLIC WORKS
___ 7 ___, 19__ ___ CHAIRMAN
ATTEST: ___ SECRETARY

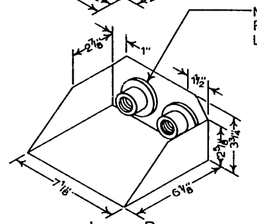
Standard Plan No.126



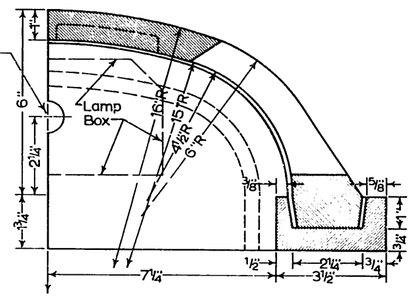
Section A-A



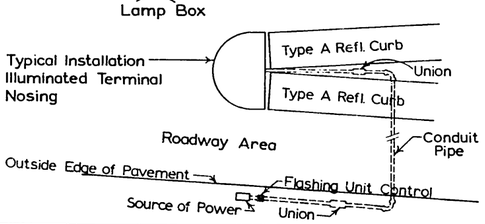




Lamp Box



Section B-B

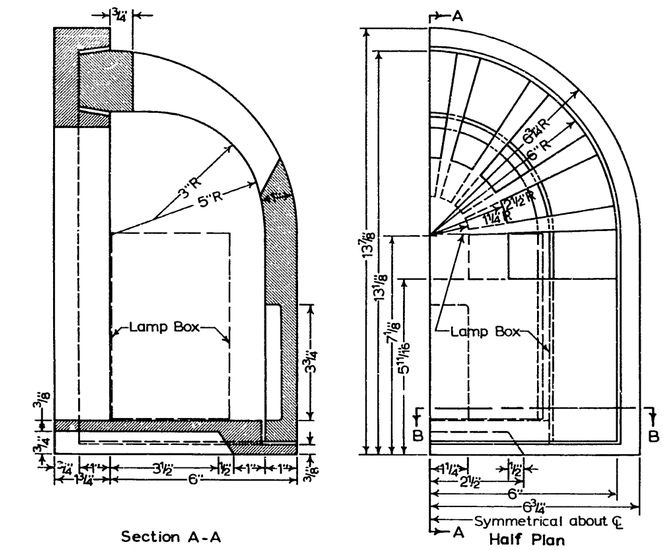


CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

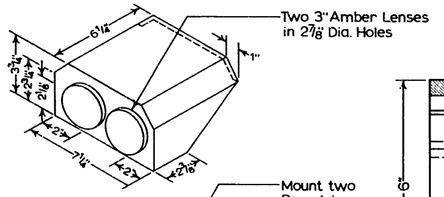
Type 126 Terminal Nosing
Illuminated

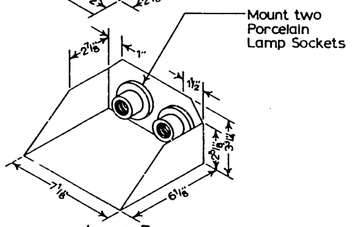
APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 ___ CHAIRMAN
ATTEST: ___ SECRETARY

Standard Plan No.127

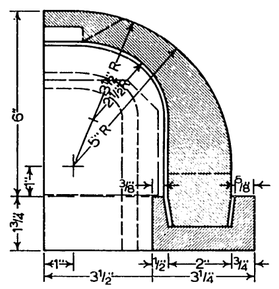


Section A-A

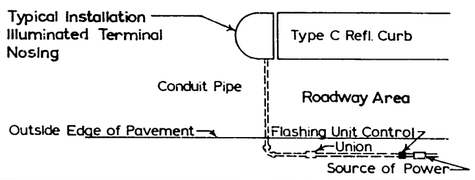




Lamp Box



Section B-B



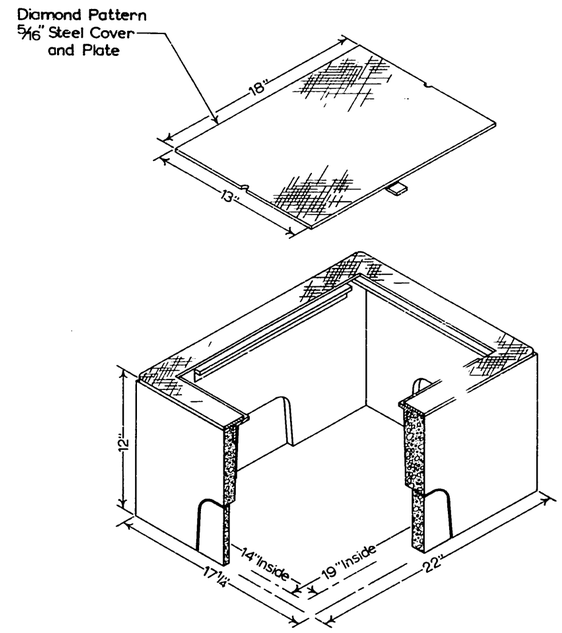
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 127 Terminal Nosing Illuminated

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No.128



Based on Fog-Tite Meter Seal Co. Design

DO NOT SCALE

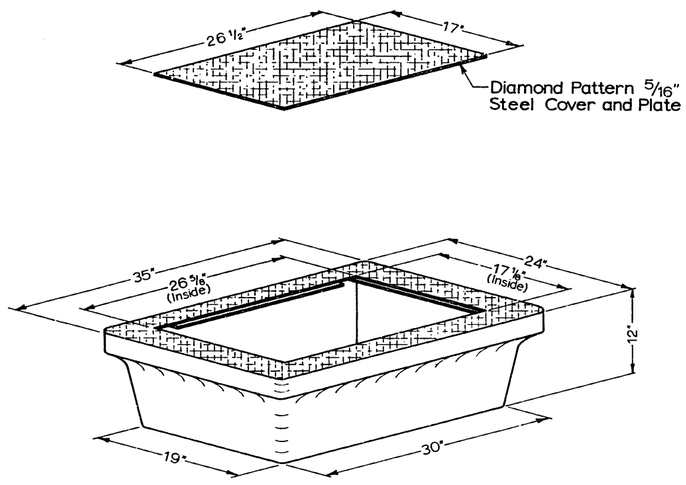
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 128 Pull Box
Precast

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Revised 5-1-70

Standard Plan No.128.1



Based on Fog-Tite Meter Seal Co. Design

DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 128.1 Pull Box
Precast

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7 ,19
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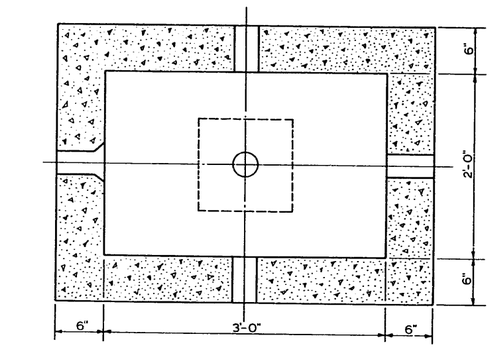
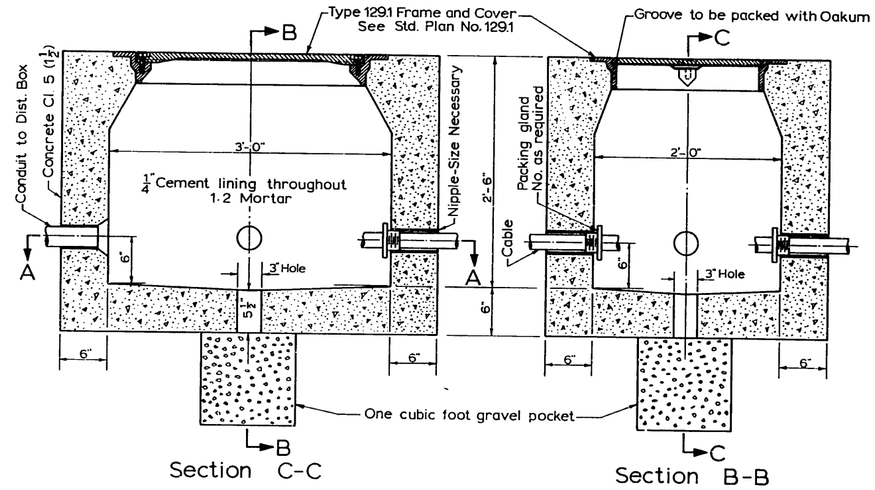
ATTEST:
SECRETARY

Standard Plan No.129



Section A-A



Section C-C

Section B-B

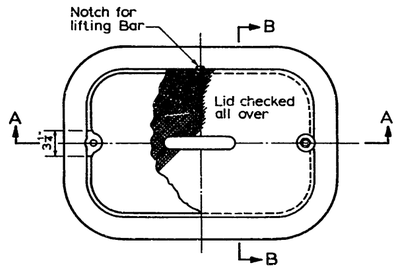
DO NOT SCALE

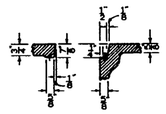
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

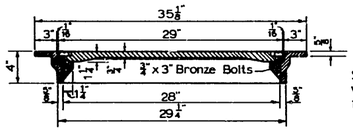
Type 129 Conc. Junction Box
Cast in Place

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964
CHAIRMAN
ATTEST:
SECRETARY

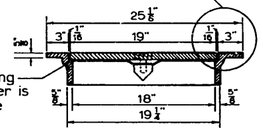
Standard Plan No. 129.1







Section A-A



Section B-B

For use with Type 129 Junction Box.

Frame and Cover shall be tested for accuracy of fit and marked in sets for delivery. See Std. Specs. Sec. 63.208.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63.208.

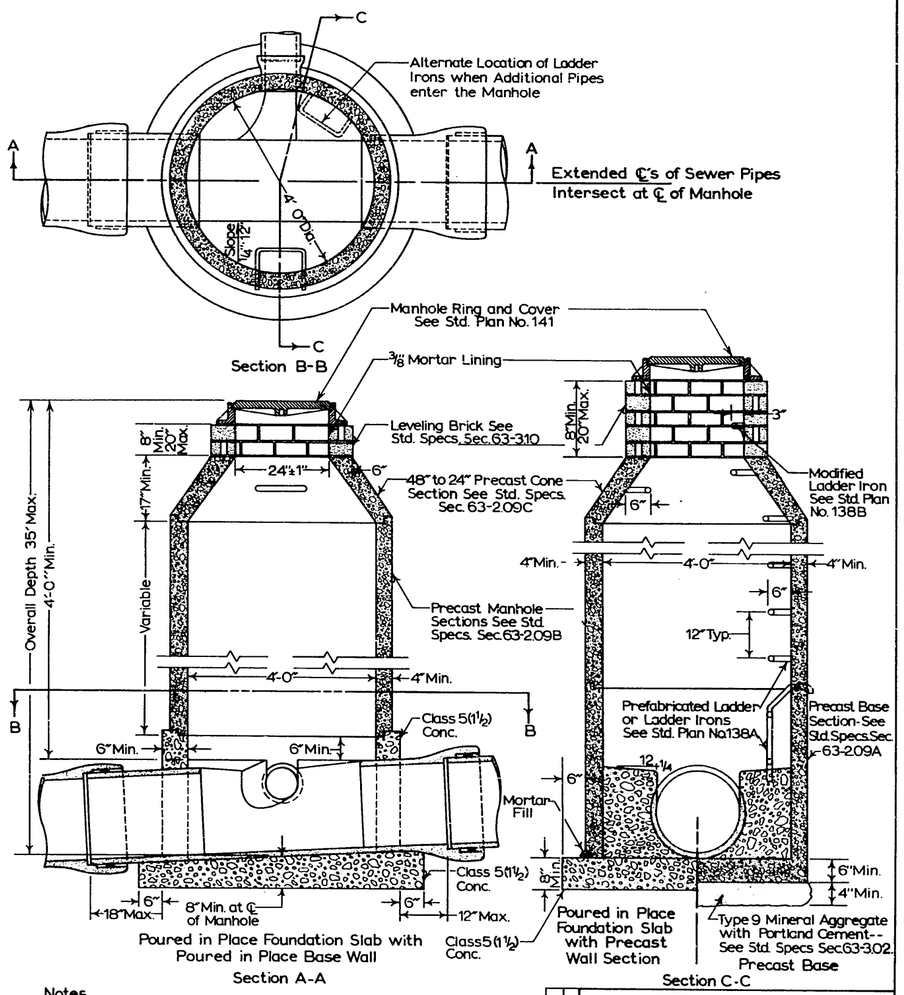
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 129.1 Frame and Cover for Junction Box

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 H. M. Morse CHAIRMAN
ATTEST: E. B. Leung SECRETARY

Standard Plan No. 130



Notes
1. Maximum Pipe Diameter=21"
2. See Std. Specs. Sec. 63 for further requirements.
3. When overall depth of Manhole is less than 7'-0" a Type 134 Manhole may be substituted for the Type 130 Manhole.
4. For Manholes constructed of alternate materials see Std. Plan No. 131.

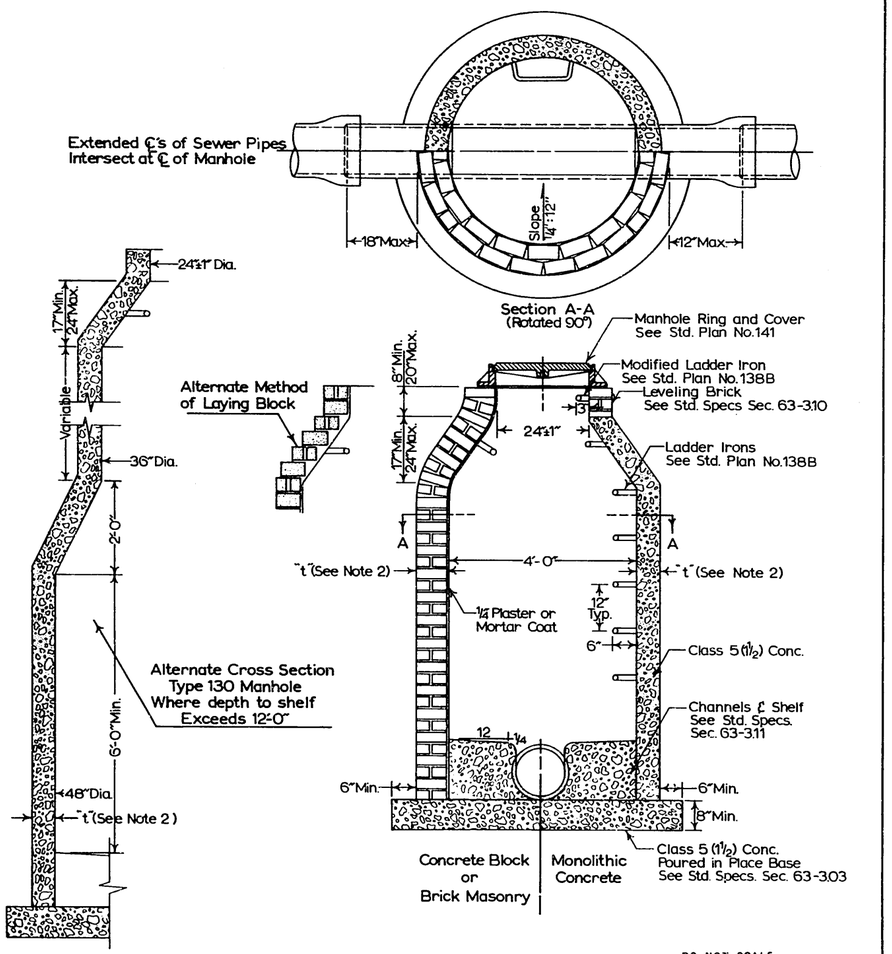
Revised 4-5-67
Revised 1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 130 Manhole

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 H. M. Morse CHAIRMAN
ATTEST: E. B. Leung SECRETARY

Standard Plan No.131



DO NOT SCALE

Notes

1. Inside dimensions of Manhole shall conform to dimensions of the Type Manhole designated.
2. Values of "t"
   Cement Concrete t=6"
   Concrete Blocks t=6"
   Brick t=8"
3. See Std. Specs. Sec. 63 for further requirements.

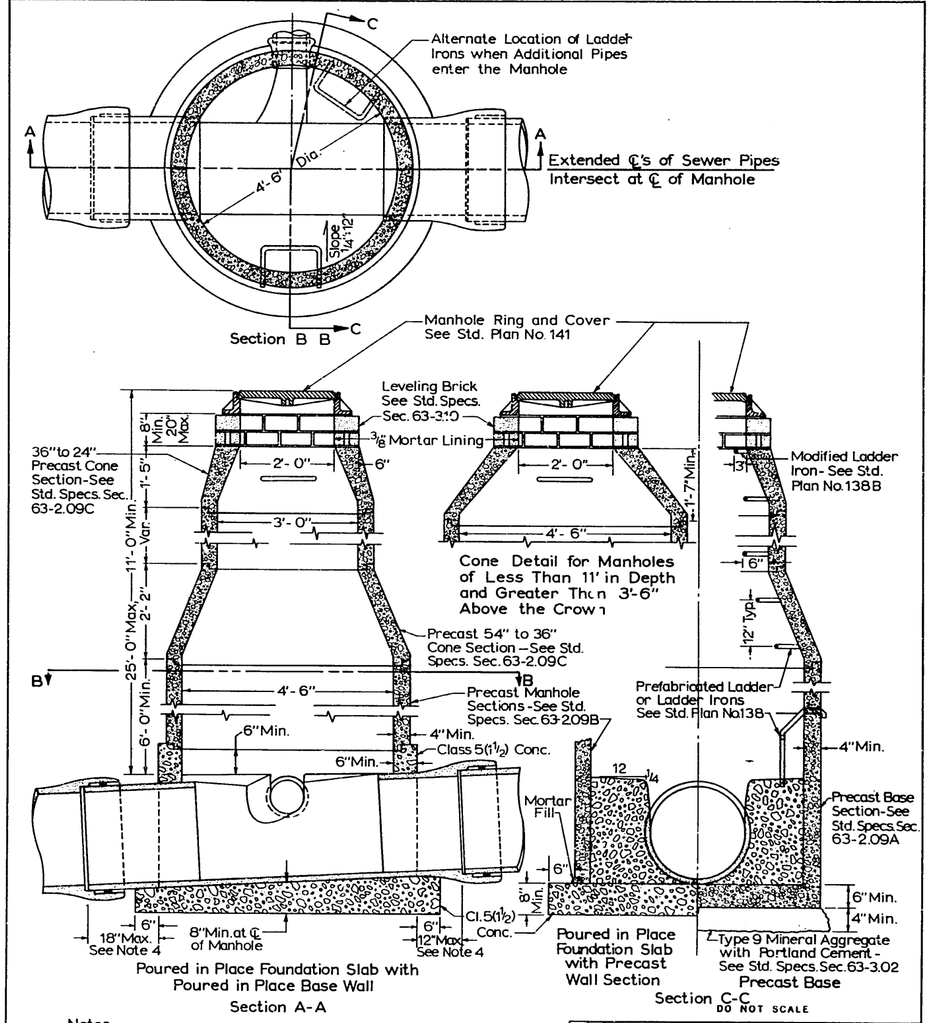
Revised	4-5-67
Revised	1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Concrete Block, Brick or Monolithic Concrete Manholes

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 6, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No. 132



DO NOT SCALE

Notes

1. Maximum Pipe Diameter=36"
2. See Std. Specs. Sec. 63 for further requirements.
3. For Manholes constructed of alternate materials see Std. Plan No. 131.
4. The maximum dimension from Manhole to pipe joint applies only to pipe diameters 24" and less. See Std. Specs. Sec. 63-3.12

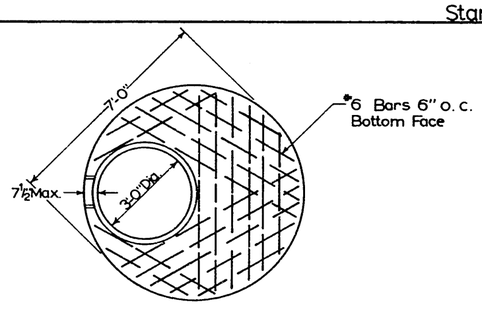
Revised	4-5-67
Revised	1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

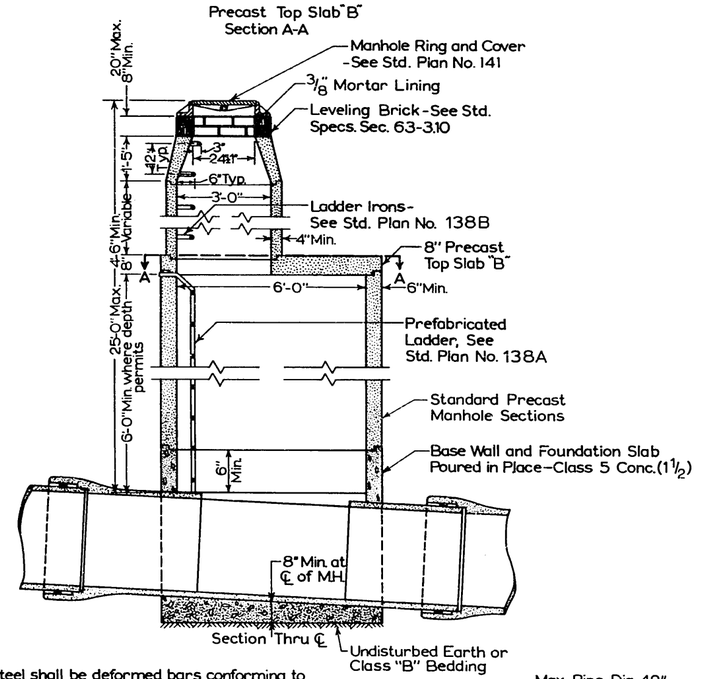
Type 132 Manhole

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 6, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No. 133



Precast Top Slab "B"
Section A-A



Reinforcing steel shall be deformed bars conforming to ASTM A-15 and shall have a minimum cover of 2".

Unit, as shown, is a cast-in-place base section above which optional construction may be brick, conc. block or cast-in-place construction at Contractor's option, unless otherwise provided in the proposal.

Construct manholes in accordance with Section 63 of the Std. Specifications.

Base walls all cast-in-place for 12" and larger pipe.

Allow flexible joints of unreinforced pipe to deflect. No concrete on, around or under joint.

All lift holes and joints to be filled with mortar.

Max. Pipe Dia. 42"

DO NOT SCALE

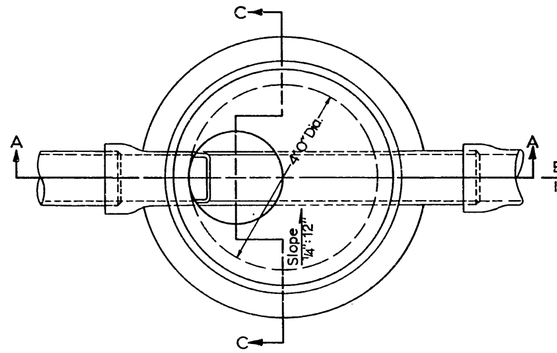
Revised	5-1-70
Revised	4-5-67
Revised	1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

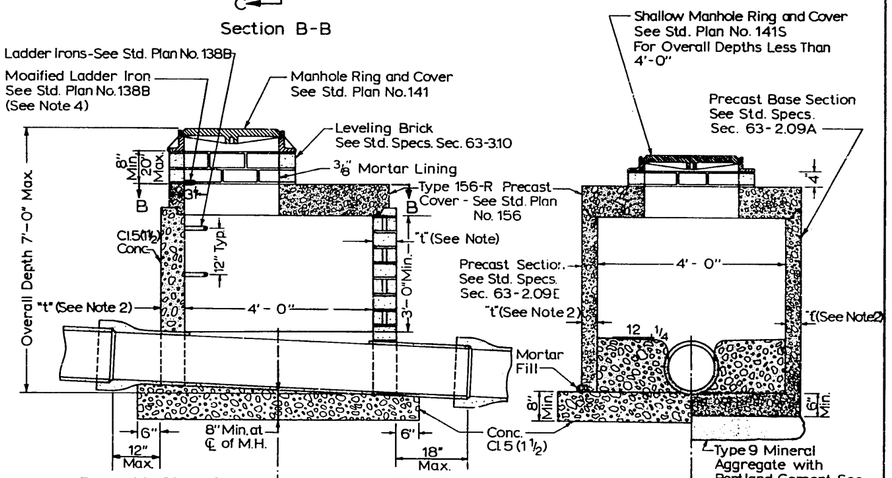
Type 133 Manhole

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 5, 1966 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No. 134



Section B-B



Section A-A

Section C-C

Notes

1. Maximum Pipe Diameter = 21"
2. Values of "t"

Precast Concrete	"t" = 4" Min.
Cement Concrete	"t" = 6"
Concrete Block	"t" = 6"
Brick	"t" = 8"

3. See Std. Specs. Sec. 63 for further requirements.
4. No Ladder Irons required when overall depth is less than 4'-0".

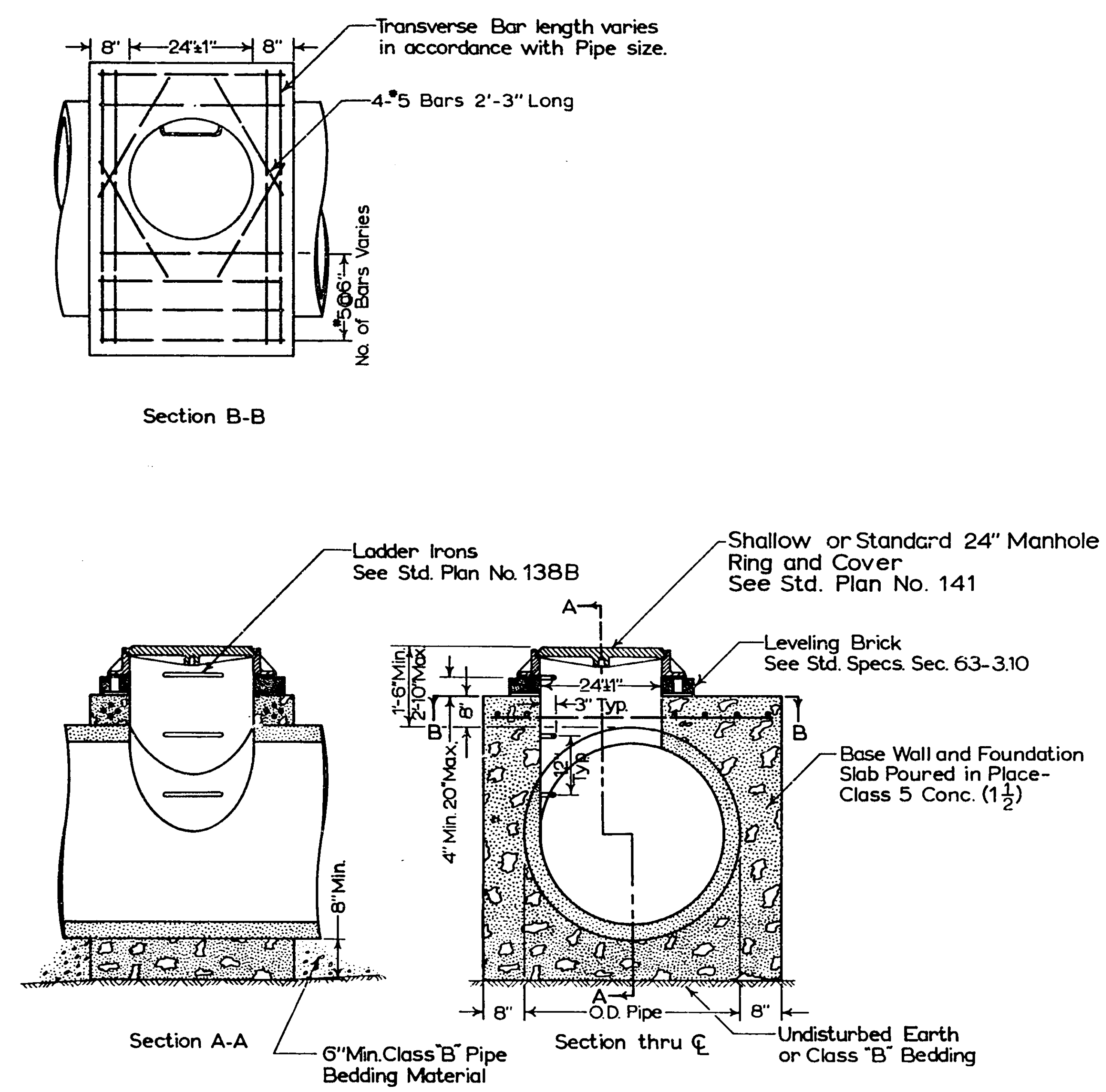
DO NOT SCALE

Revised	5-1-70
Revised	4-5-67
Revised	1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 134 Manhole

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 5, 1966 CHAIRMAN
ATTEST: SECRETARY



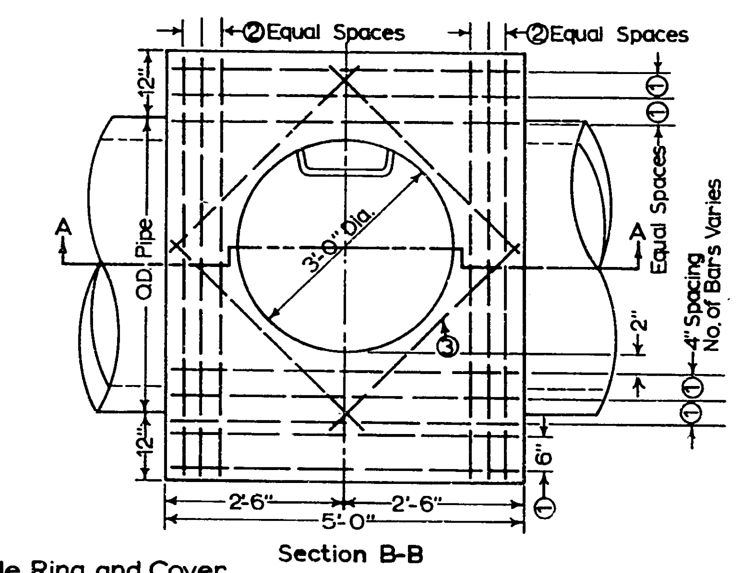
Pipe Dia. 24" Min. - 42" Max.

Reinforcing Steel shall be deformed bars conforming to ASTM A-15 and shall have a min. cover of 2."

Construct manholes in accordance with Section 63 of the Std. Specifications.

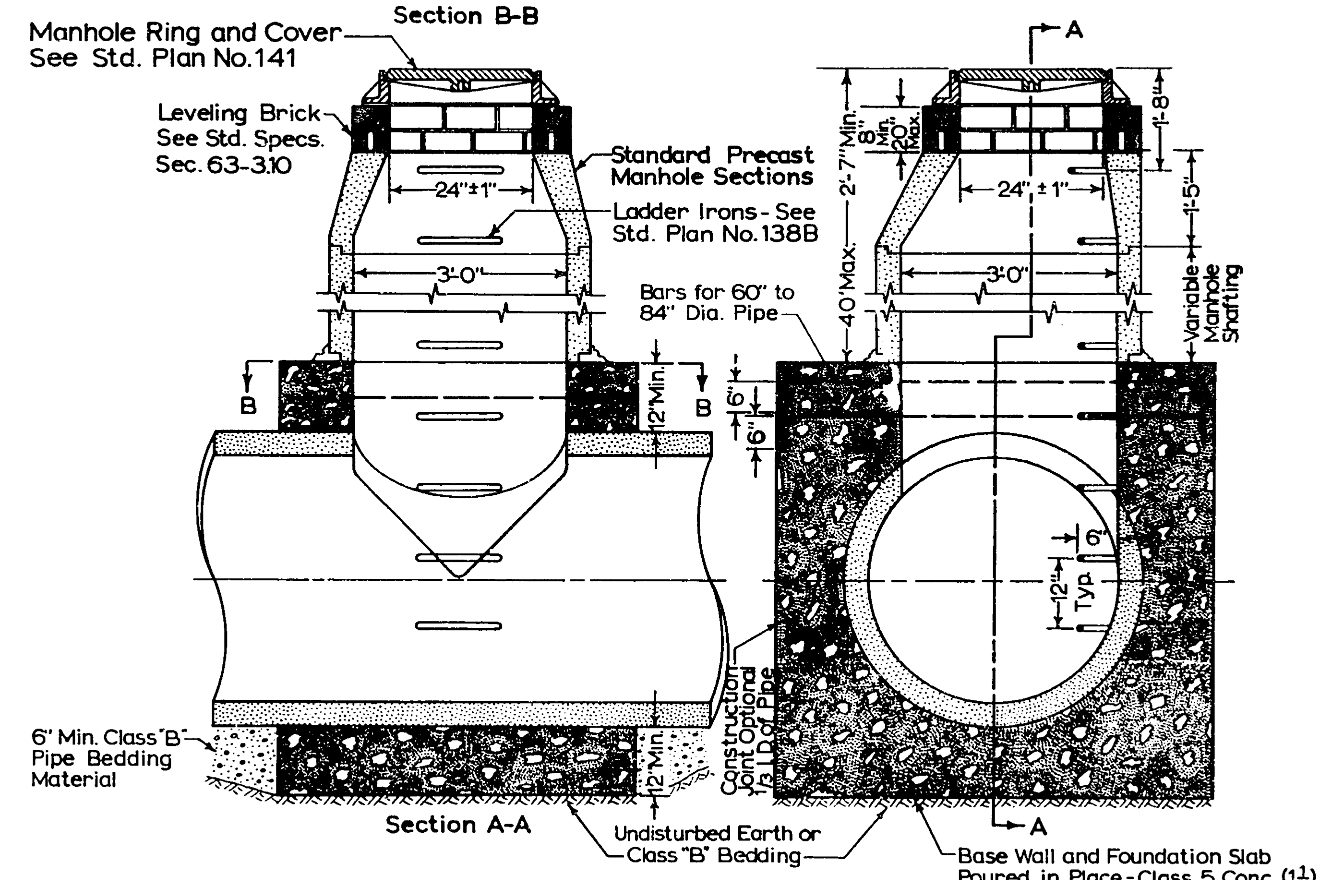
DO NOT SCALE

Revised 4-5-67	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
Revised 1-6-65	Type 135 Manhole
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 ______ CHAIRMAN ATTEST: ______ SECRETARY



BAR LIST

Pipe Dia.	No.	Size	Length
① Longitudinal Bars			
42"	6	5	4'-8"
48"	7	"	"
54"	8	"	"
60"	10	"	"
66"	11	"	"
72"	12	"	"
78"	14	"	"
84"	16	"	"
② Transverse Bars			
42"	6	5	2'-8"+O.D.
48"	6	6	"
54"	6	6	"
60"	12	5	"
66"	12	5	"
72"	12	6	"
78"	12	6	"
84"	12	6	"
③ Diagonal Bars			
42"-84"	4	5	3'-8"



Unit, as shown, is a cast-in-place base section above which optional construction may be brick, conc. block or cast-in-place construction at Contractor's option, unless otherwise provided in the proposal.

Construct manholes in accordance with Section 63 of the Std. Specifications.

Reinforcing steel shall have a min. cover of 2".

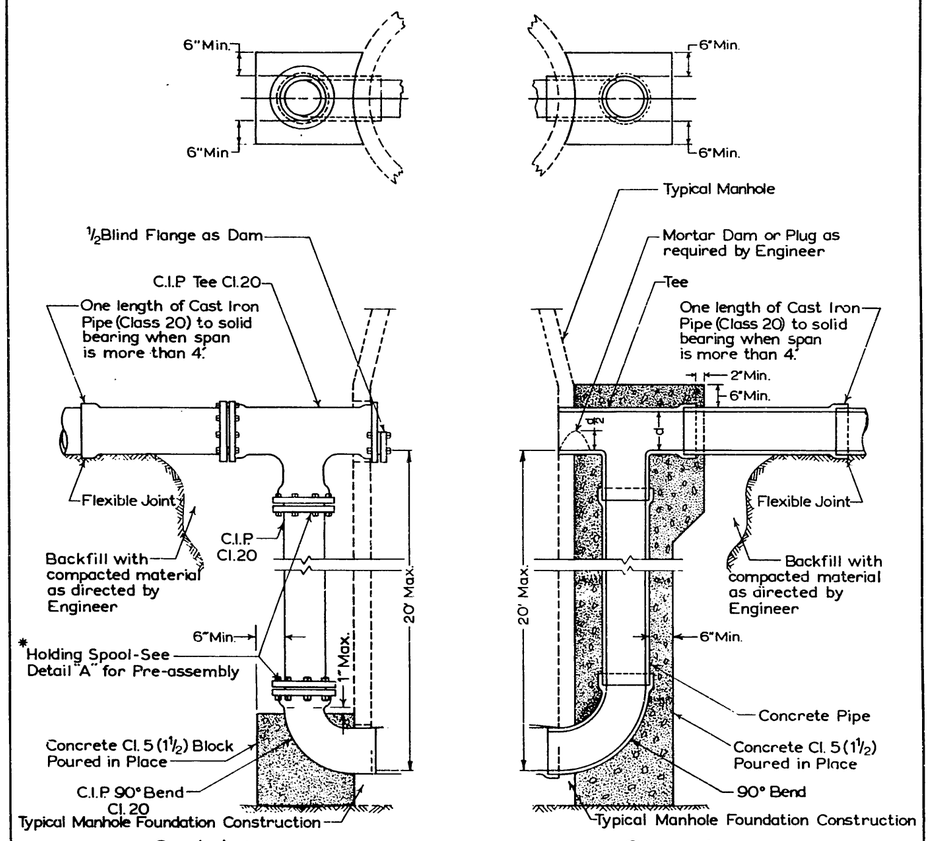
Eccentric Cones shall be used only where specified.

All lift holes and joints to be filled with mortar.

DO NOT SCALE

Revised 4-5-67	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
Revised 1-6-65	Type 136 Manhole
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 ______ CHAIRMAN ATTEST: ______ SECRETARY

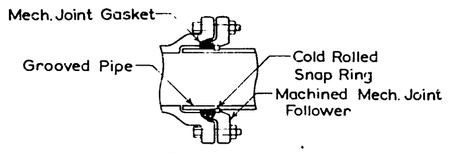
Standard Plan No. 137



Cast Iron
Drop Connection

Concrete
Drop Connection

To be used where drop is not more than 20'
DO NOT SCALE

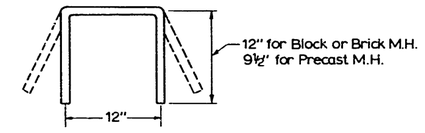


Detail A

*Mech. Joint or Slip-on Joint C.I.P may be used if assembled in the trench.

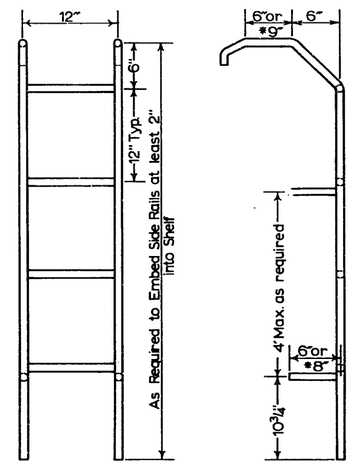
Revised	4-5-67	CITY OF SEATTLE
Revised	1-6-65	DEPARTMENT OF ENGINEERING
		Type 137 Drop Connection
		APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 CHAIRMAN
		ATTEST SECRETARY

Standard Plan No.138



Legs may be parallel or approximately radial at option of manufacturer except that all steps in any manhole shall be similar.

138 B - Manhole Step



138A - Prefabricated Ladder

*Larger Dimension when Ladder is used with Precast Reducing Slab.

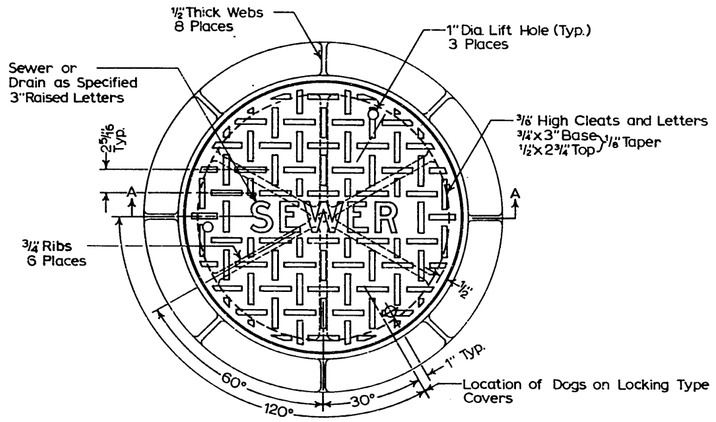
Rungs and Irons to be deformed or non-skid.

Materials for Aluminum Ladder Irons and Prefabricated Ladders, or Galvanized Deformed Bar Ladder Irons and Prefabricated Ladders, shall conform to the specifications therefor in Section 63-2.02A and Section 63-2.02B, respectively.

DO NOT SCALE

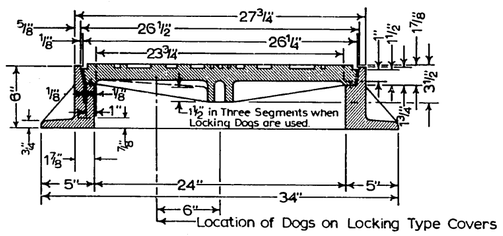
Revised	5-1-70	CITY OF SEATTLE
Revised	4-5-67	DEPARTMENT OF ENGINEERING
Revised	1-6-65	Ladder and Manhole Step
		APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 CHAIRMAN
		ATTEST: SECRETARY

Standard Plan No. 141



Ring and Cover shall be tested for accuracy of fit and shall be marked in sets for delivery. See Std. Specs. Sec. 113.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63.208.



Section A-A

Designate Nodular Iron as Type 141N
(Nodular Iron To Be Used For Cover Only)

Designate Locking Cover as Type 141L
(For Locking Device See U.S. Govt. Patent Office Design Patent No. 2697389)

Designate Shallow Ring as Type 141S
(For Shallow Ring 6" Dimension to be 4")

Combinations of Type Designations May Be Used
(Type 141-LNS – Type 141 Locking Cover, Nodular Iron, Shallow Ring)

DO NOT SCALE

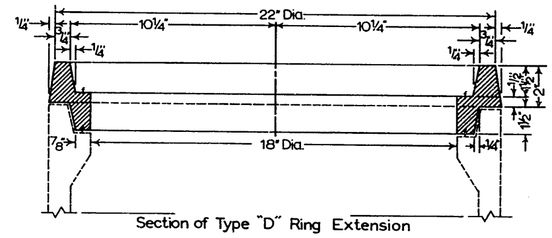
Revised 4-5-67

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

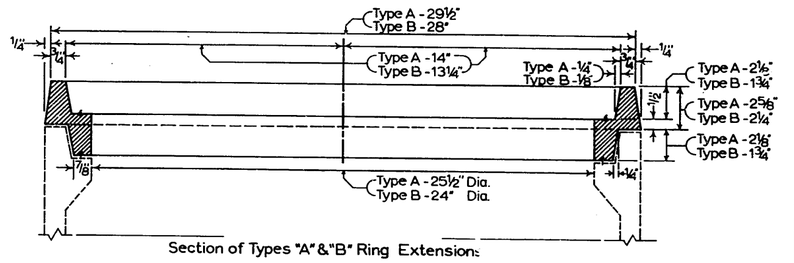
Type 141-24 Inch Diameter Manhole Ring and Cover

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 D.W. Morse CHAIRMAN
ATTEST: E.S. Lung SECRETARY

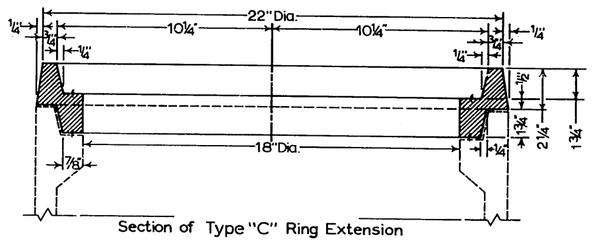
Standard Plan No. 145



Section of Type "D" Ring Extension



Section of Types "A" & "B" Ring Extensions



Section of Type "C" Ring Extension

Manhole ring extension shall be tested for accuracy of fit. See Std. Specs. Sec. 113.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63.208.

DO NOT SCALE

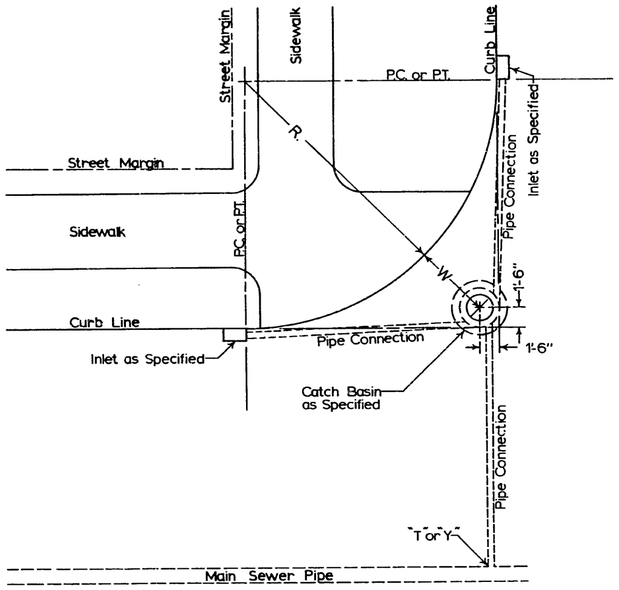
Revised 4-5-67

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Manhole Ring Extensions

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 D.W. Morse CHAIRMAN
ATTEST: E.S. Lung SECRETARY

Standard Plan No.149



Distance "W" for Catch Basin location varies according to "R" as located by the City Engineer for making satisfactory pipe connections, and to clear other underground utilities.

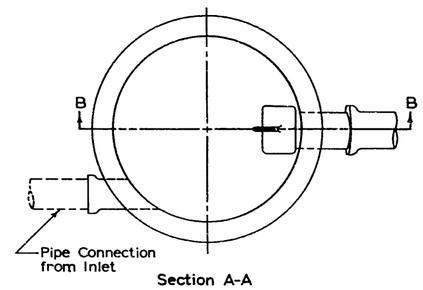
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

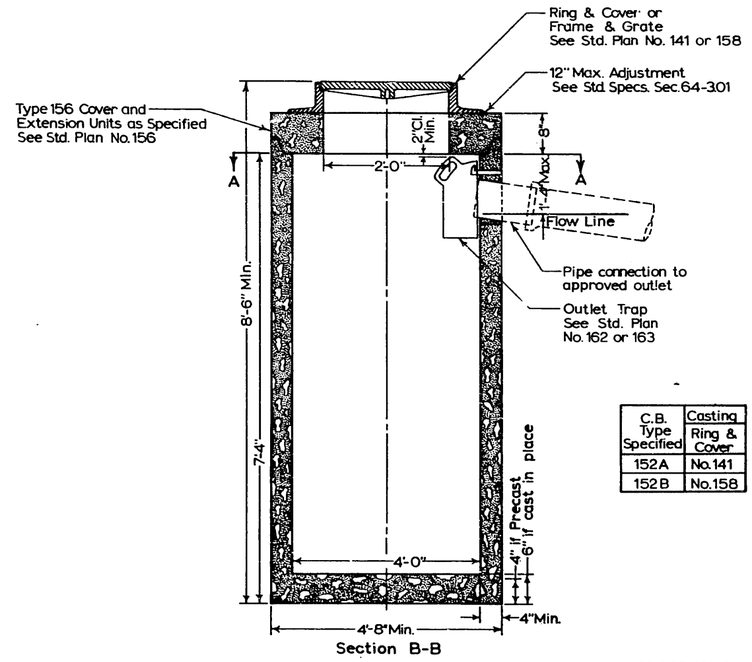
Location of Catch Basin with Inlets

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 J. D. Morse CHAIRMAN
ATTEST: E. Benson SECRETARY

Standard Plan No.150



Section A-A



C.B. Type Specified	Casting Ring & Cover
152A	No. 141
152B	No. 158

Section B-B

All lift holes and joints to be filled with mortar.

DO NOT SCALE

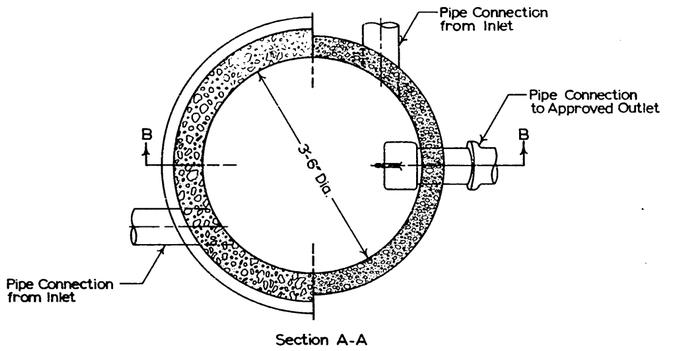
Revised	5-1-70
Revised	4-5-67

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

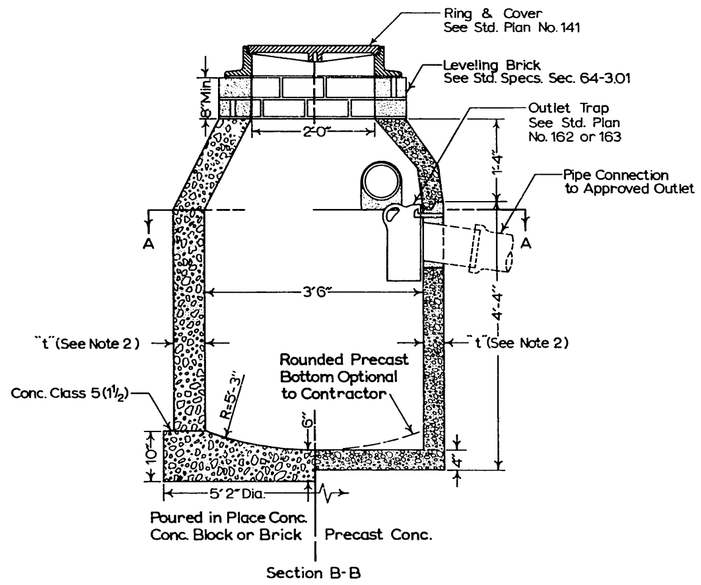
Type 150 Catch Basin

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 J. D. Morse CHAIRMAN
ATTEST: E. Benson SECRETARY

Standard Plan No. 151



Section A-A



Section B-B

Notes

1. Invert of Inlet Pipes must be above invert of Outlet Pipe.
2. Values of "t"
   - Cement Concrete t=6"
   - Concrete Blocks t=6"
   - Brick t=8"
   - Precast Concrete t=4" Min.
3. See Std. Specs. Sec. 64 for further requirements.

DO NOT SCALE

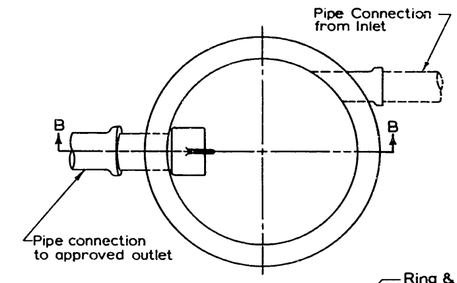
Revised	Revised
5-1-70	4-5-67

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

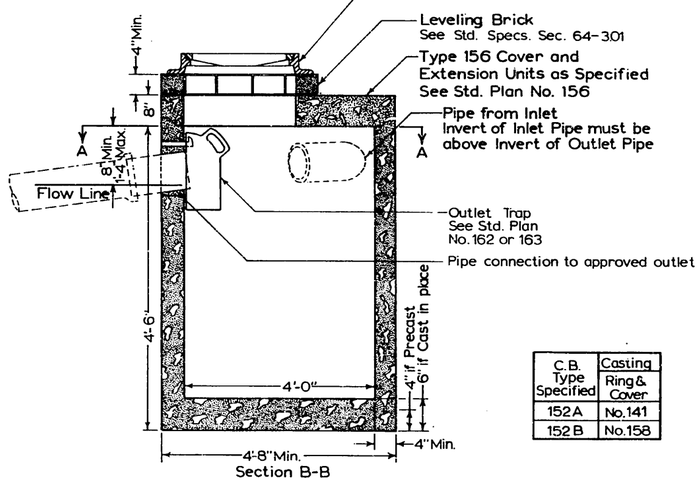
Type 151 Catch Basin

APPROVED BY THE BOARD OF PUBLIC WORKS
_____, 19__ _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No. 152



Section A-A



Section B-B

C.B. Type Specified	Casting Ring & Cover
152 A	No. 141
152 B	No. 158

Inlet or Manhole Ring and Cover to be placed over trap.

Openings in grate to be placed parallel to direction of flow.

All lift holes, joints, and opening for Outlet Pipe to be filled with mortar or brick chip and mortar.

DO NOT SCALE

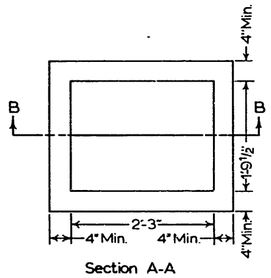
Revised	Revised	Revised
5-1-70	4-5-67	1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

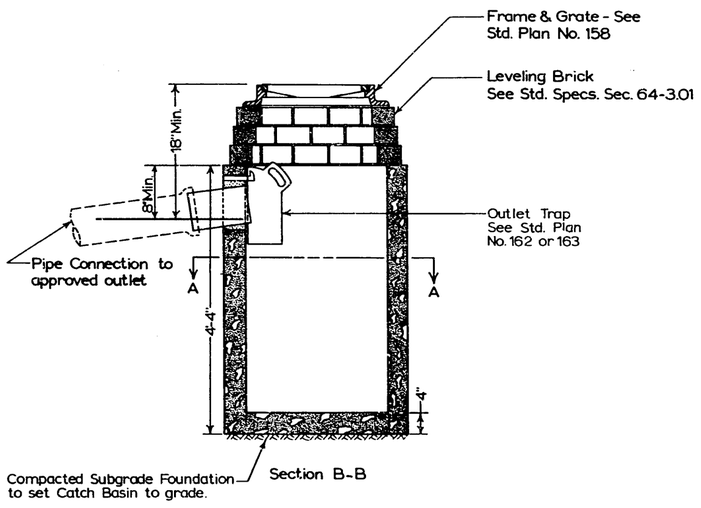
Type 152 Catch Basin

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 6, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No. 153



Section A-A



All lift holes and joints to be filled with mortar

For installation see Std. Plan No. 153.1

Compacted backfill shall be placed around Catch Basin before pipe connection is made.

DO NOT SCALE

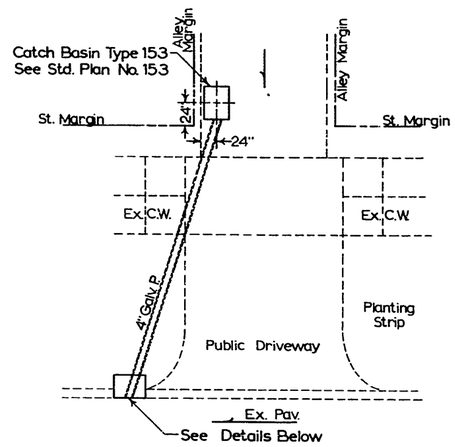
Revised	5-1-70
Revised	4-5-67
Revised	1-6-65

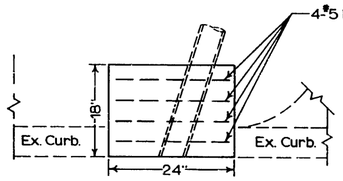
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

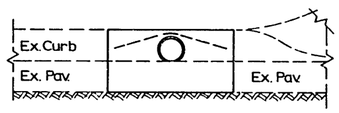
Type 153 Catch Basin

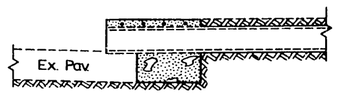
APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No. 153.1









When Curb is existing remove and replace as shown.

DO NOT SCALE

Revised	5-1-70

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 153 Catch Basin Installation

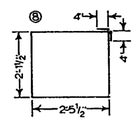
APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

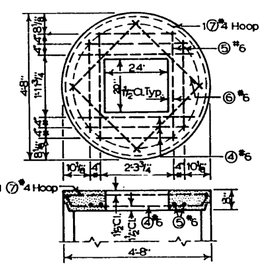
Standard Plan No.156

Bar List
All dimensions are out to out

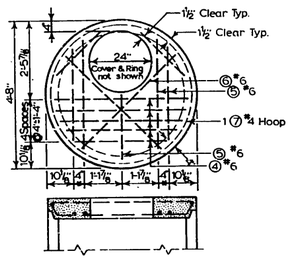
Mark	Location	No.	Size	Length	Bending Diagram
4	Cover Slab 156N Bottom-Long.	6	6	Var.	L=2ea.@ 4-5"; 4-1" & 3-6"
5	Cover Slab 156 N Bottom-Transv.	4	6	Var.	L=2ea.@ 4-2" & 3-8"
6	Cover Slab 156 N Bottom-Diag.	4	6	3-2"	Str.
7	Cover Slab 156 N Top	1	4	14-11"	
4	Cover Slab 156 P Bottom-Long.	6	6	Var.	L=2@ 4-9"; 1ea.@ 4-7"; 4-3"; 3-9"; & 3-0"
5	Cover Slab 156 P Bottom-Transv.	5	6	Var.	L=2ea.@ 4-2"; & 3-8"; 1@ 2-9"
6	Cover Slab 156 P Bottom-Diag.	4	6	Var.	Str. 2ea@ 3-9"; & 3-2"
7	Cover Slab 156 P Top	1	4	14-11"	
4	Cover Slab 156 R Bottom-Long.	5	6	Var.	L=1ea.@ 4-9"; 4-8"; 4-6"; 4-1" & 3-7"
5	Cover Slab 156R Bottom-Transv.	5	6	Var.	L=2ea.@ 4-2"; 3-8"; 1@ 2-5"
6	Cover Slab 156 R Bottom-Diag.	4	6	Var.	Str. 2ea.@ 4-4"; & 2-5"
7	Cover Slab 156 R Top	1	4	14-11"	
8	156 S	2	3	9-10"	

All Steel to be deformed bars conforming to ASTM-A15 and shall have a minimum cover of 2".

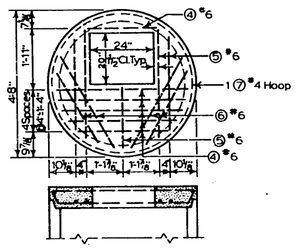




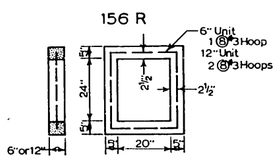
156 N



156 R



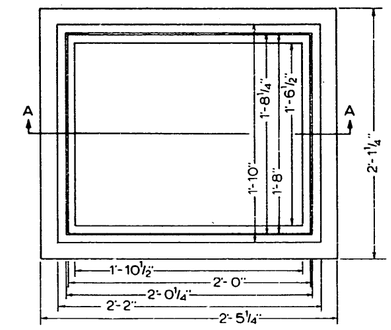
156 P



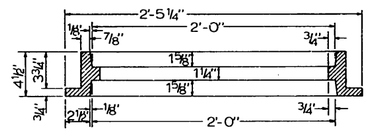
156 S

CITY OF SEATTLE DEPARTMENT OF ENGINEERING
Catch Basin Inlet-Precast Cover and Extension Units
APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 5, 1961 _____ CHAIRMAN ATTEST: _____ SECRETARY

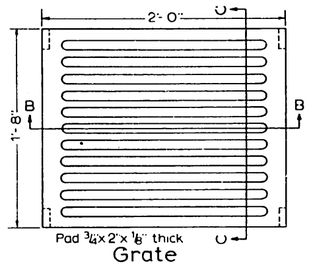
Standard Plan No.158



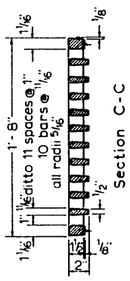
Frame



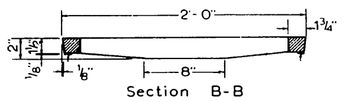
Section A-A



Grate



Section C-C



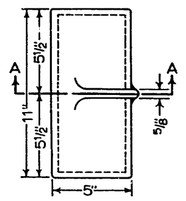
Section B-B

Note:
Sections through Grate. (Corner pads to be machined or ground for solid, non-rocking bearing in any of four possible positions in frame)

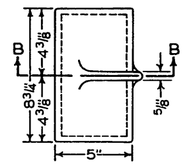
DO NOT SCALE

Revised 5-1-70
CITY OF SEATTLE DEPARTMENT OF ENGINEERING
Type 158 Inlet Frame and Grate
APPROVED BY THE BOARD OF PUBLIC WORKS 4-5 1967 _____ CHAIRMAN ATTEST: _____ SECRETARY

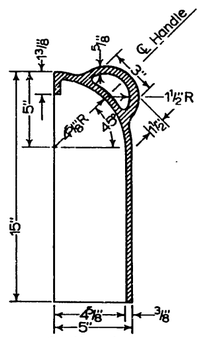
Standard Plan No.162



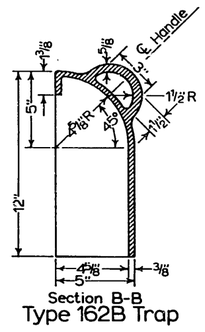
Top View Type A Trap



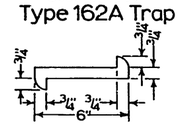
Top View Type B Trap



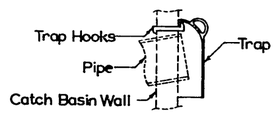
Section A-A
Type 162A Trap



Section B-B
Type 162B Trap



Trap Hook
Trap Hooks may be round or square in cross-section.



Trap Installation

Type 162A Trap to be used with 8" I.D. Outlet Pipe.

Type 162B Trap to be used with 4" or 6" I.D. Outlet Pipe.

Trap may be Cast Iron ASTM Designation A48 Class 25 or Cast Steel ASTM Designation A27 Grade 70-36.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63-2.08.

DO NOT SCALE

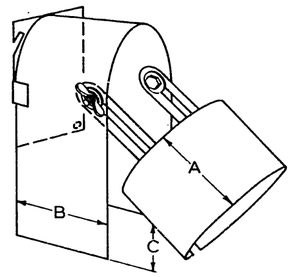
Revised 4-5-67
Revised 1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 162 Outlet Trap

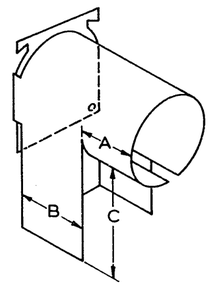
APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 6, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No.163

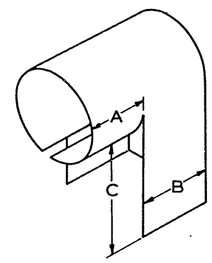


TYPE 163A
Adjustable With Gate

Size	A	B	C Max.	Gauge
4"	3"	3"	3.75"	18
6"	4"	5"	4.5"	14
8"	4"	6.5"	5.5"	14



TYPE 163B



TYPE 163C

Dimensions With Or Without Gate

Size	A	B	C	Gauge
4"	3"	3"	3"	18
6"	4"	5"	4"	14
8"	4"	6.5"	4"	14
10"	4"	8"	4"	14
12"	5"	10"	4"	Body 14 Collar 12

Type 163A is to be used only where the catch basin outlet pipe makes an angle of more than 10° with the horizontal. Type 163B or Type 163C is to be used only where the catch basin outlet pipe makes an angle of less than 10° with the horizontal.

The Aluminum Self-Locking Trap may be used, at the option of the contractor, as an alternate to Type 162A and Type 162B traps as shown on Standard Plan No. 162.

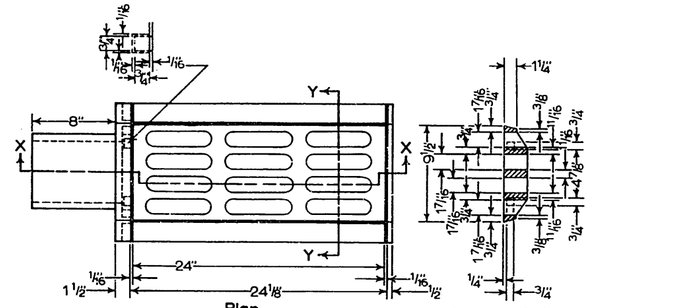
DO NOT SCALE

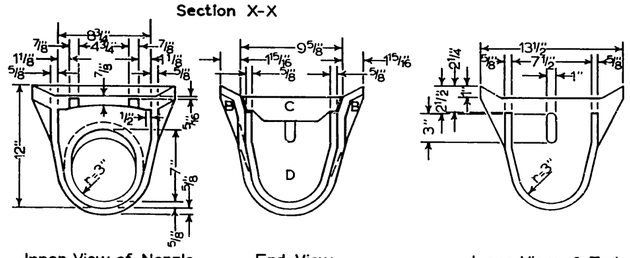
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 163 Outlet Trap

APPROVED BY THE BOARD OF PUBLIC WORKS
_____, 1979 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No.164





For Inlet Installation see Std. Plan No.164.1.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63.208.

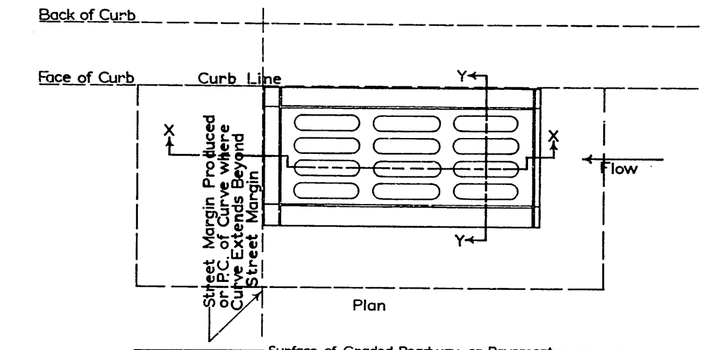
DO NOT SCALE

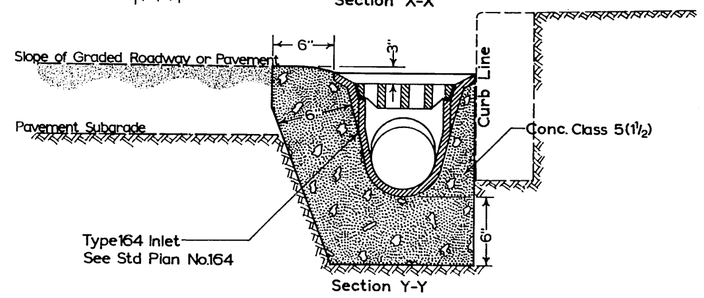
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 164 Inlet
Castings and Assembly

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 6, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No.164.1





Frame and Grate are to be set so the Curb Face will not interfere with removal of Grate.

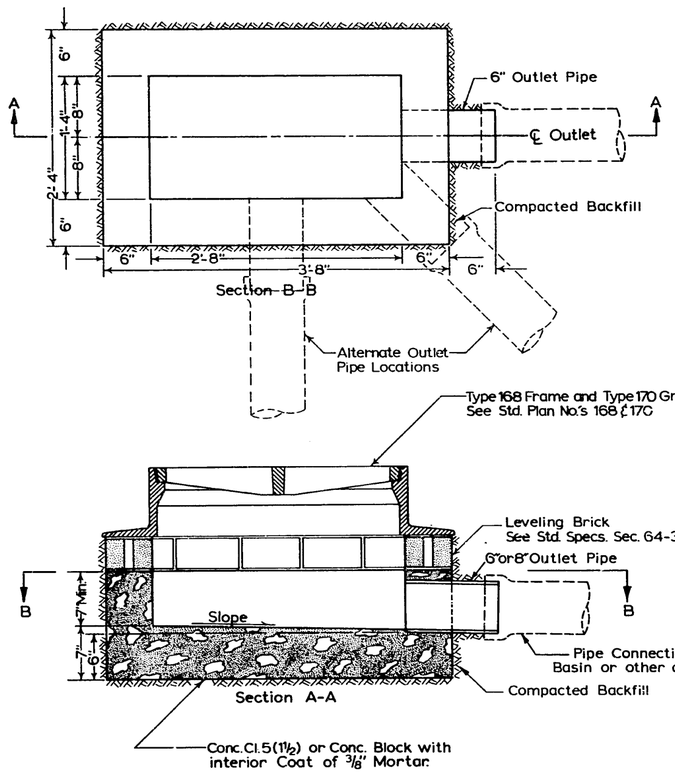
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 164 Inlet Installation

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 6, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No.165



Cast Outlet Pipe of Inlet included in payment for Inlet.

Pipe Connection payment separate from payment for Inlet.
See Std. Specs Sec. 69-3.04

For Inlet Installation See Std. Plan No.165.1

DO NOT SCALE

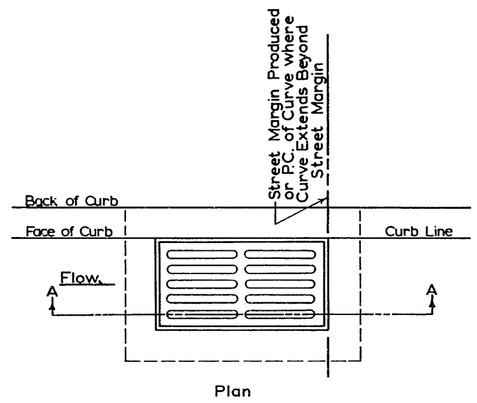
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

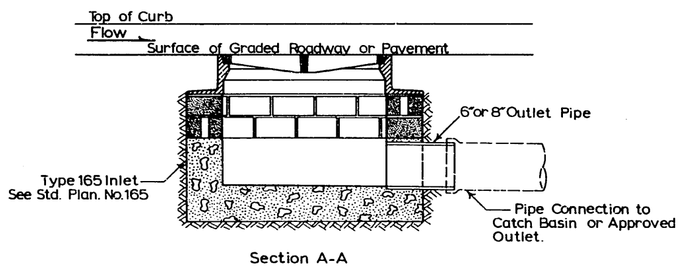
Type165 Inlet

Revised 5-1-70
Revised 4-5-67

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No.165.1





Frame and Grate are to be set so the Curb Face will not interfere with removal of Grate

DO NOT SCALE

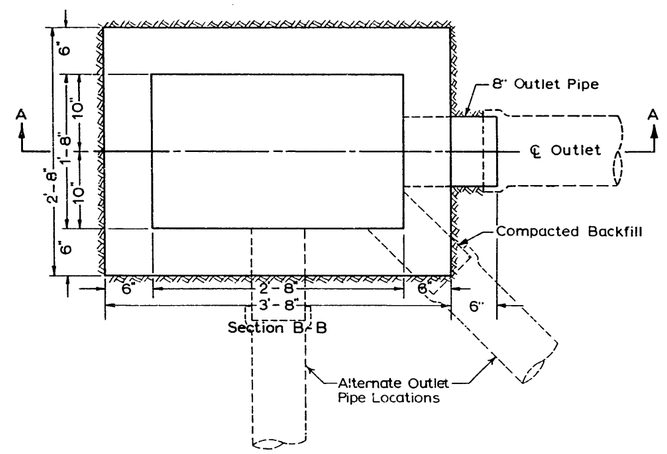
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

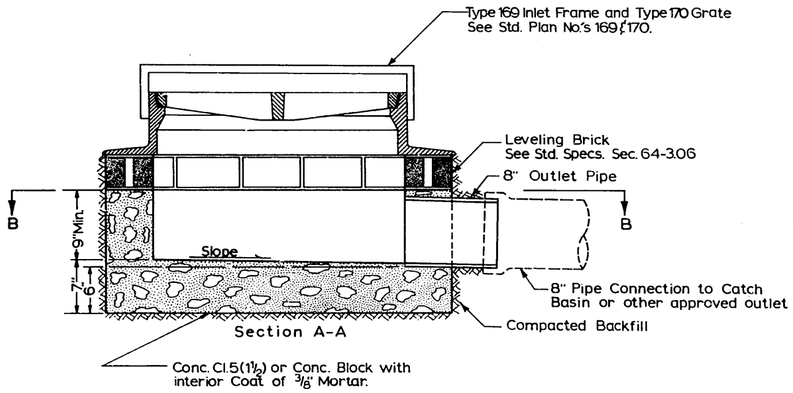
Type 165 Inlet Installation

Revised 5-1-70
Revised 4-5-67

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No.166





Cast Outlet Pipe of Inlet included in payment for Inlet

Pipe Connection payment separate from payment for Inlet.
See Std. Specs. Sec. 69-3.04

For Installation See Std. Plan No.166.1

DO NOT SCALE

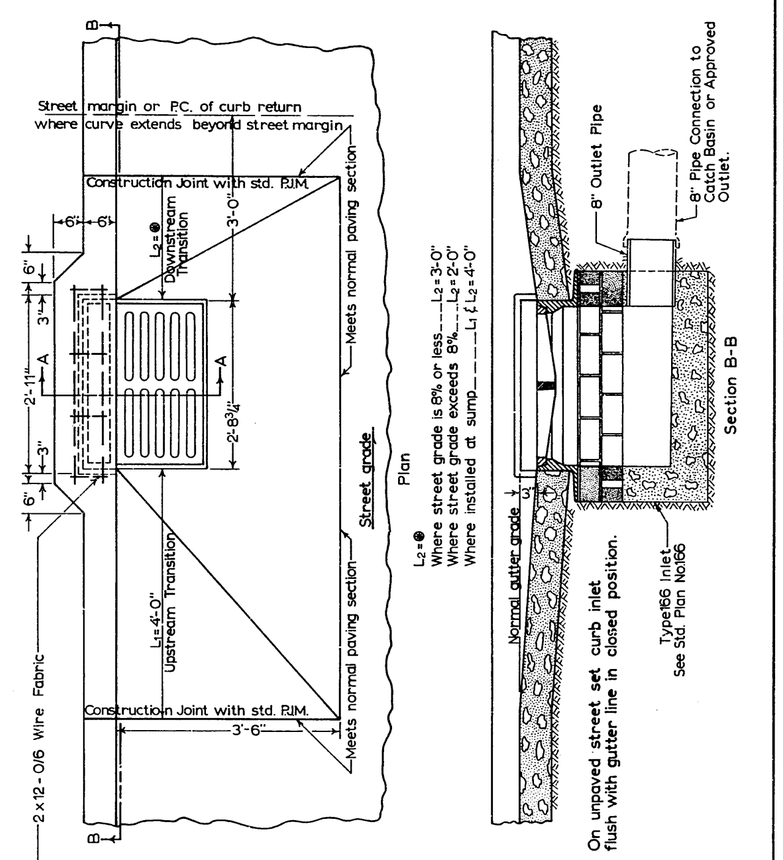
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type166 Inlet

Revised 5-1-70
Revised 4-5-67

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 — CHAIRMAN
ATTEST: — SECRETARY

Standard Plan No.166.1



DO NOT SCALE

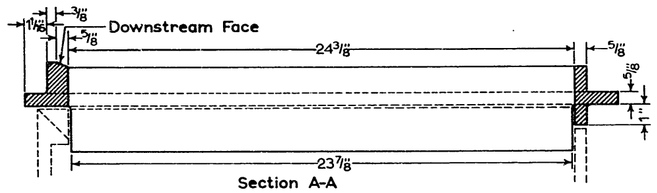
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type166 Inlet Installation

Revised 4-5-67

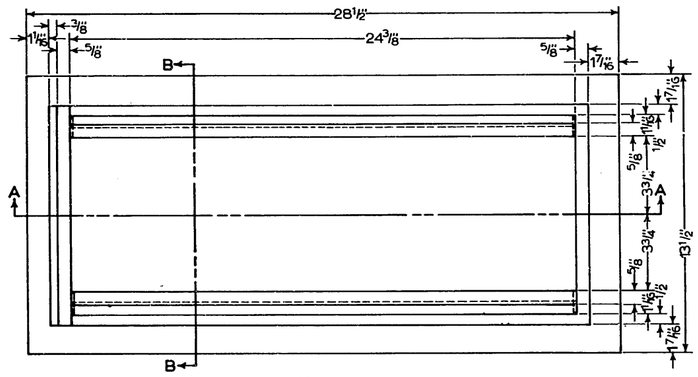
APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 — CHAIRMAN
ATTEST: — SECRETARY

Standard Plan No.167

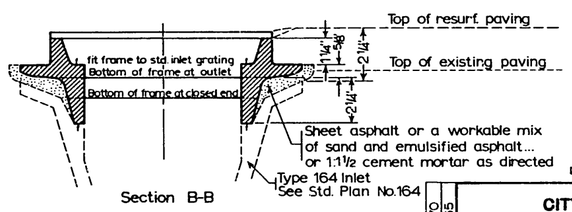


Section A-A

These Dimensions may be changed if necessary to fit Existing Castings.....



Plan



Section B-B

Inlet extension shall be tested for accuracy of fit. See Std. Specs. Sec. 113

All Casting to have a bituminous coating according to Std. Specs. Sec. 63-2.08

DO NOT SCALE

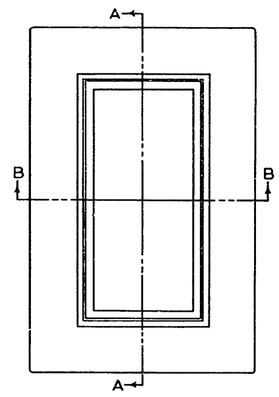
Revised 5-1-70
Revised 1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

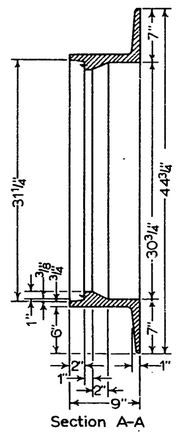
Inlet Extension for Type 164 Inlet

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 — CHAIRMAN
ATTEST: — SECRETARY

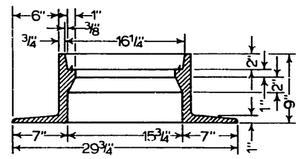
Standard Plan No.168



Plan



Section A-A



Section B-B

Use Type 170 Inlet Grate

Frame and Grate shall be tested for accuracy of fit and shall be marked in sets for delivery See Std. Specs Sec. 113.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63-2.08.

DO NOT SCALE

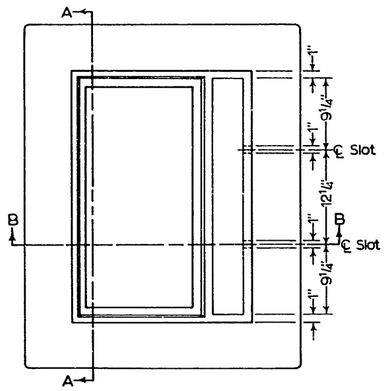
Revised 1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

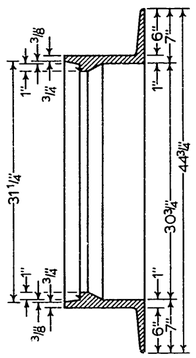
Type 168 Inlet Frame

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 — CHAIRMAN
ATTEST: — SECRETARY

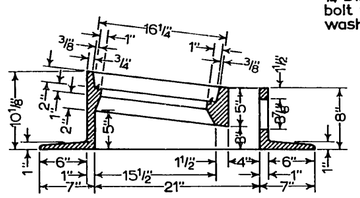
Standard Plan No.169



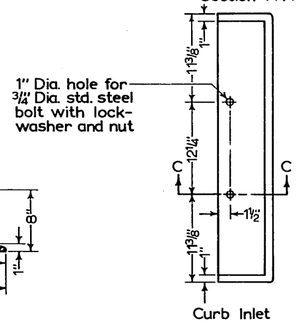
Plan



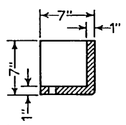
Section A-A



Section B-B

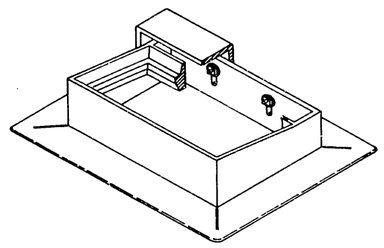


Curb Inlet



Section C-C

ISOMETRIC VIEW



Use Type 170 Inlet Grate

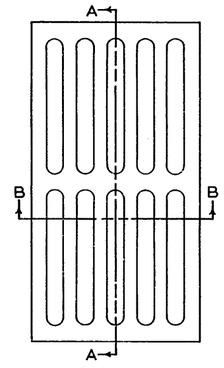
Frame and Grate shall be tested for accuracy of fit and shall be marked in sets for delivery. See Std. Specs. Sec. 113.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63-2.08.

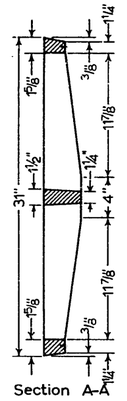
DO NOT SCALE

1-6-65	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Type 169 Inlet Frame
Revised	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 6, 1964 _____ CHAIRMAN ATTEST: _____ SECRETARY

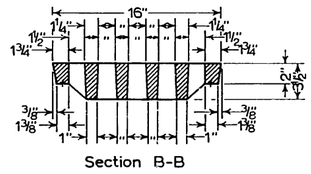
Standard Plan No.170



Plan



Section A-A



Section B-B

For use with Type 168 and 169 Inlet Frames.

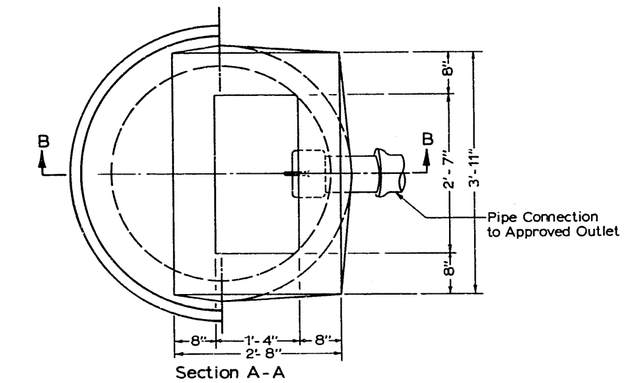
Frame and Grate shall be tested for accuracy of fit and shall be marked in sets for delivery. See Std Specs. Sec. 113.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63-2.08.

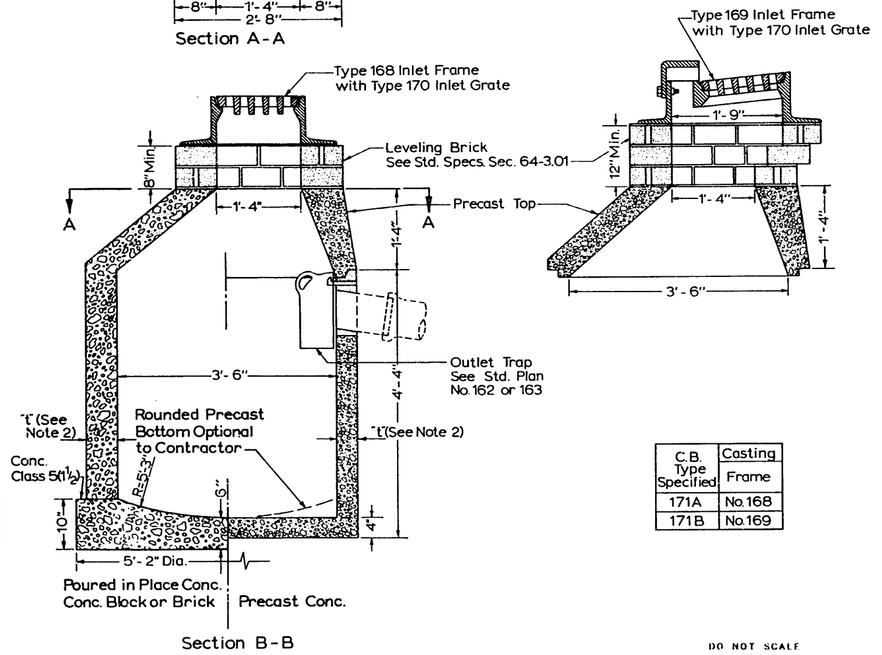
DO NOT SCALE

1-8-65	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Type170 Inlet Grate
Revised	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 6, 1964 _____ CHAIRMAN ATTEST: _____ SECRETARY

Standard Plan No. 171



Section A-A



Section B-B

C.B. Type Specified	Casting Frame
171A	No. 168
171B	No. 169

DO NOT SCALE

Notes

1. See Std. Specs. Sec. 64 for further requirements.
2. Values of "t"
   Cement Concrete t=6" Brick t=8"
   Concrete Blocks t=6" Precast Concrete t=4" Min.
3. Type 168 Inlet Frame shall be set as shown on Std. Plan No. 165.1
4. Type 169 Inlet Frame shall be set as shown on Std. Plan No. 166.1

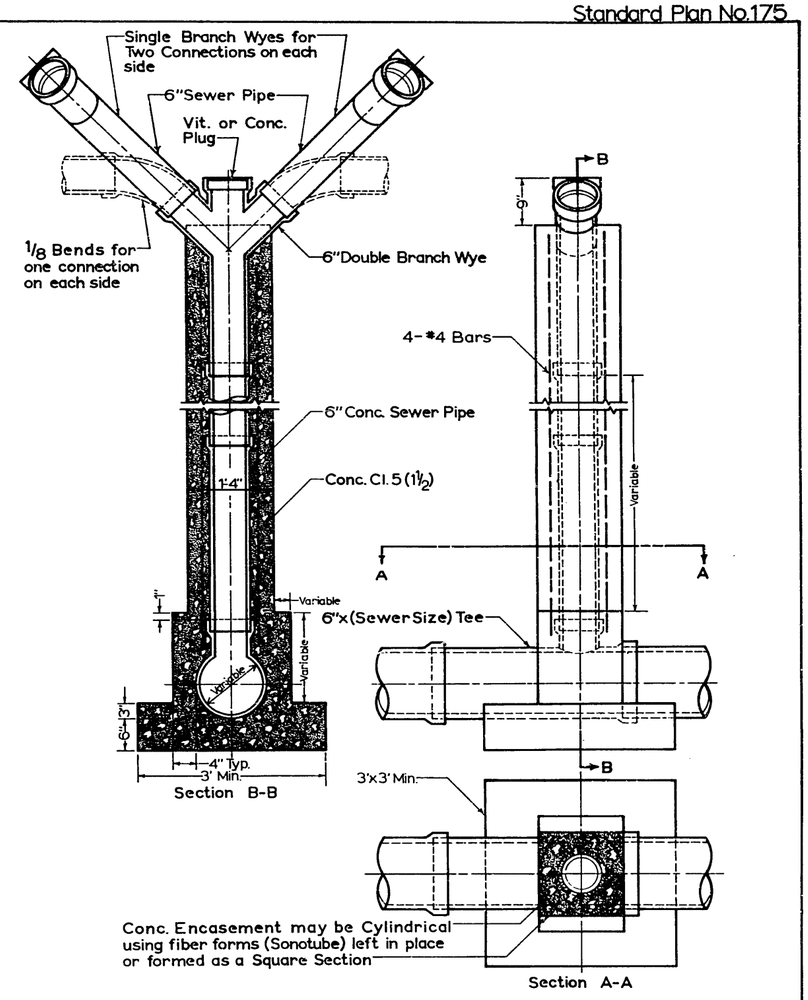
Revised 5-1-70
Revised 4-5-67

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 171 Inlet Top Catch Basin

APPROVED BY THE BOARD OF PUBLIC WORKS
_____, 19____ _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No. 175



Section B-B

Section A-A

DO NOT SCALE

Reinforcing steel shall be deformed bars conforming to ASTM A-15 and shall have a minimum cover of 2".

Revised 5-1-70

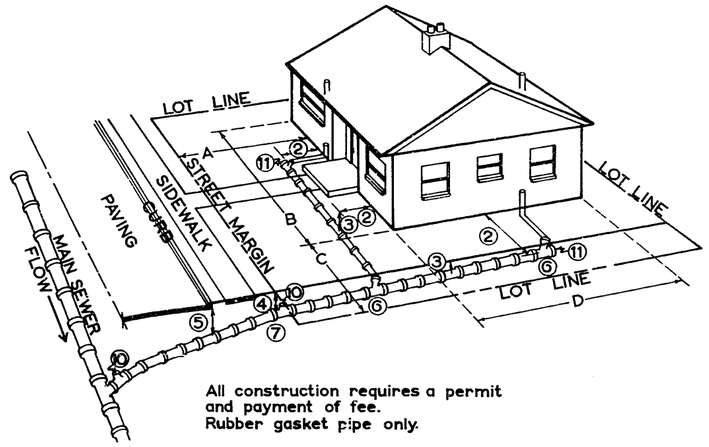
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Vertical Connection

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No.176

All construction to be in accordance with current Side Sewer Ordinance.

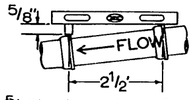


All construction requires a permit and payment of fee.
Rubber gasket pipe only.

Complete legal description of property and dimensions A, B, C, and D that show the size and location of the house are mandatory for issuance of permit.

1. All house plumbing outlets must be connected to the sewer. No downspouts or storm drainage may be connected, except to separate storm sewer.
2. **30" min. distance from house.**
3. **18" min. coverage of pipe.**
4. **30" min coverage at property line.**
5. **5' min coverage at curb line.**
6. Lay pipe in straight line between bends. Make all changes in grade or line with 1/8 bend or wye. 90° change with wye and 1/8 bend.
7. Standard 4" to 6" increaser.
8. **6" sewer pipe--min. size in street, and elsewhere as directed.**
9. **4" sewer pipe--min. size on property. 2% min. grade, 100% (45°) max. grade.**
10. Test "T" with plug.
11. **Conc. or Vit. plug.**
12. **Construction in street must be done by a licensed sewer contractor.**

Method of obtaining 2% min. grade.



Attach 5/8" knob or piece of scrap material to level. Lay level on bells of pipe with knob pointing in direction of flow. Level bubble must read level. Attach straight board to short levels to reach both bells.

DO NOT SCALE

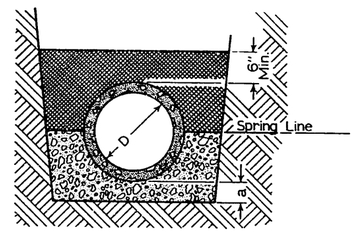
Revised 5-1-70
Revised 4-5-67

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

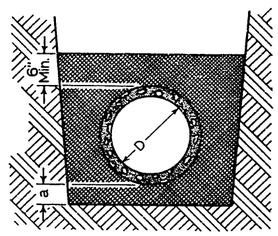
Sanitary Side Sewer Installation

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 D. H. Mace CHAIRMAN
ATTEST: E. Shelby SECRETARY

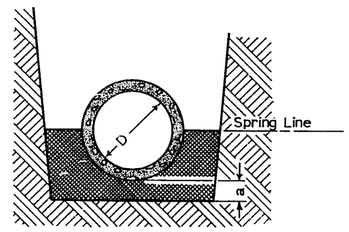
Standard Plan No. 177



Class "A" Bedding
(Concrete Bedding)



Class "B" Bedding



Class "C" Bedding

Type 9 aggregate
See Std. Specs. Sec. 20.

Concrete Class 4 ($1\frac{1}{2}$)

a=4" When "D" is less than 30"

a=6" When "D" is 30" or more.

Reinforcement shall be specified on the Construction Drawing for Class "A" Bedding.

Concrete shall have a maximum water-cement ratio of 8:2 and a minimum cement factor of 4.

DO NOT SCALE

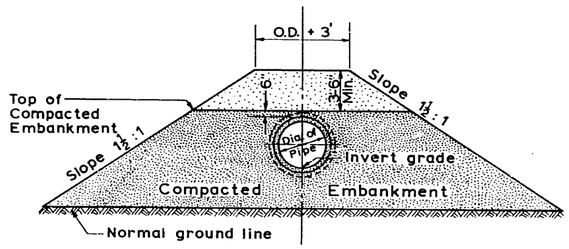
Revised 4-5-67
Revised 1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Pipe Bedding

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 D. H. Mace CHAIRMAN
ATTEST: E. Shelby SECRETARY

Standard Plan No.178



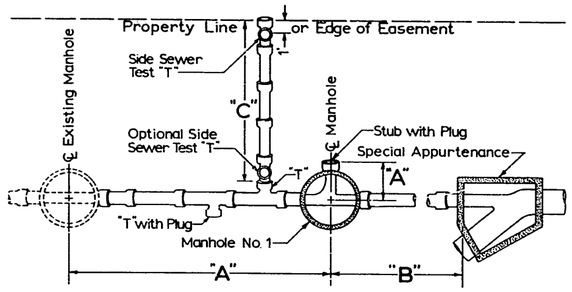
Note:
Normal ground line and depth of compacted embankment shall be determined by the City Engineer.

Sewers Constructed in Fill

DO NOT SCALE

Revised 4-5-67	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Sewer Construction Details
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 CHAIRMAN ATTEST: SECRETARY

Standard Plan No.179



Payment Shall Be Made For :

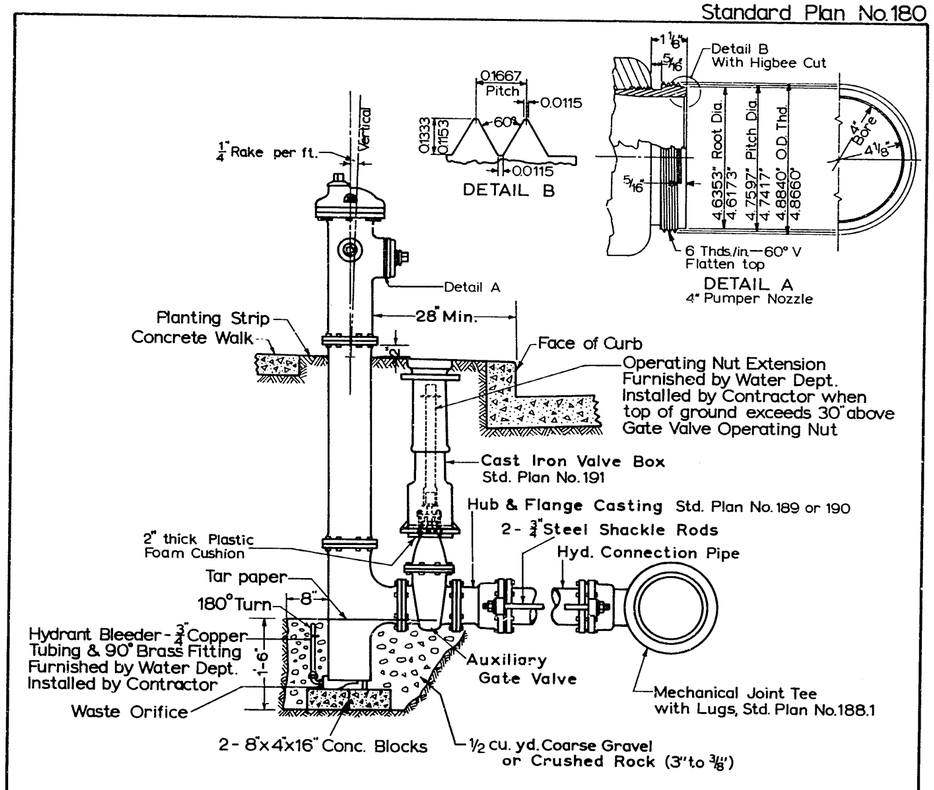
1. Pipe diameters "A," "B" or "C" – Per Linear Foot.
2. Tees or Wyes of proper size, type and with plug-Unit price each in addition to unit price per foot for "A," "B" or "C."

All Pipe shall be measured on the slope along the ℄ of Pipe.

DO NOT SCALE

Revised 4-5-67 Revised 1-6-65	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Sewer Payment Diagram
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 CHAIRMAN ATTEST: SECRETARY

Standard Plan No.180



All fire hydrant threaded nipples such as the 2 1/2 in. discharge ports and the 4 in. pumper nozzle shall be equipped with the blunt start or Higbee Cut.

The 2 1/2 in. nipples shall be in accordance with the National Fire Protection Association Bulletin No. 194, dated 1963.

Hydrant tees shall be set horizontally—connection shall be level.

DO NOT SCALE

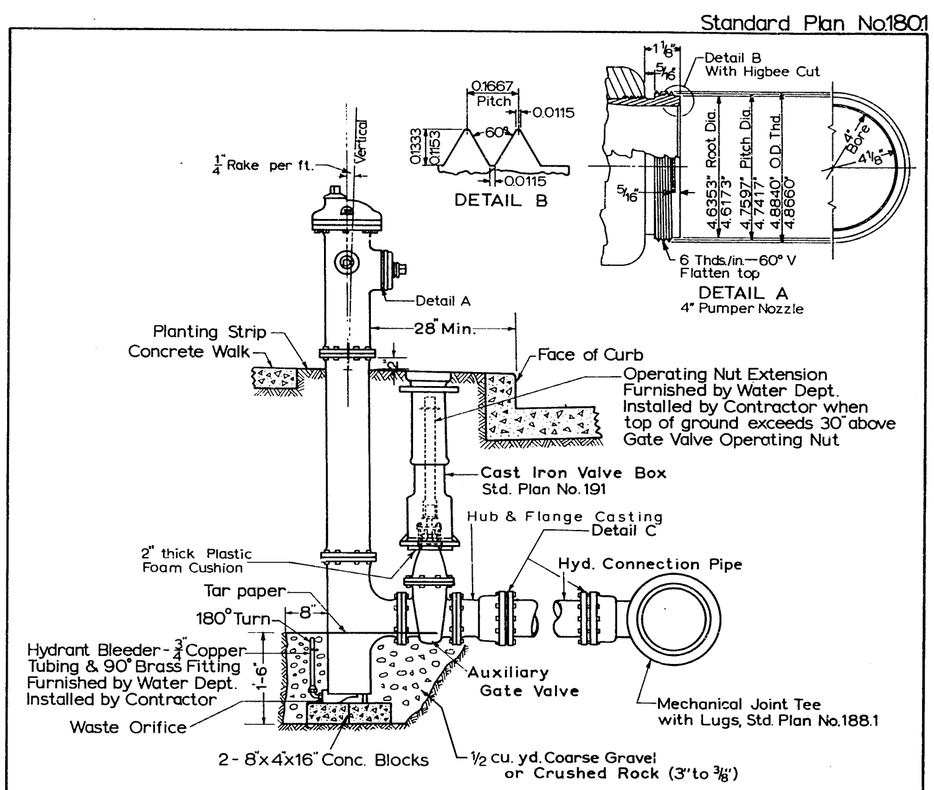
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

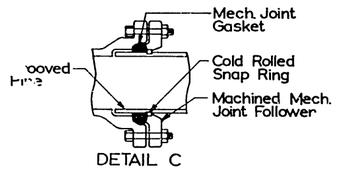
Type 180 Hydrant Setting - Residential

Revised 5-1-70
Revised 4-5-67
Revised 1-6-65

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 — CHAIRMAN
ATTEST: — SECRETARY

Standard Plan No.180.1





DETAIL C

All fire hydrant threaded nipples such as the 2 1/2 in. discharge ports and the 4 in. pumper nozzle shall be equipped with the blunt start or Higbee Cut.

The 2 1/2 in. nipples shall be in accordance with the National Fire Protection Association Bulletin No. 194, dated 1963.

Hydrant tees shall be set horizontally—connection shall be level.

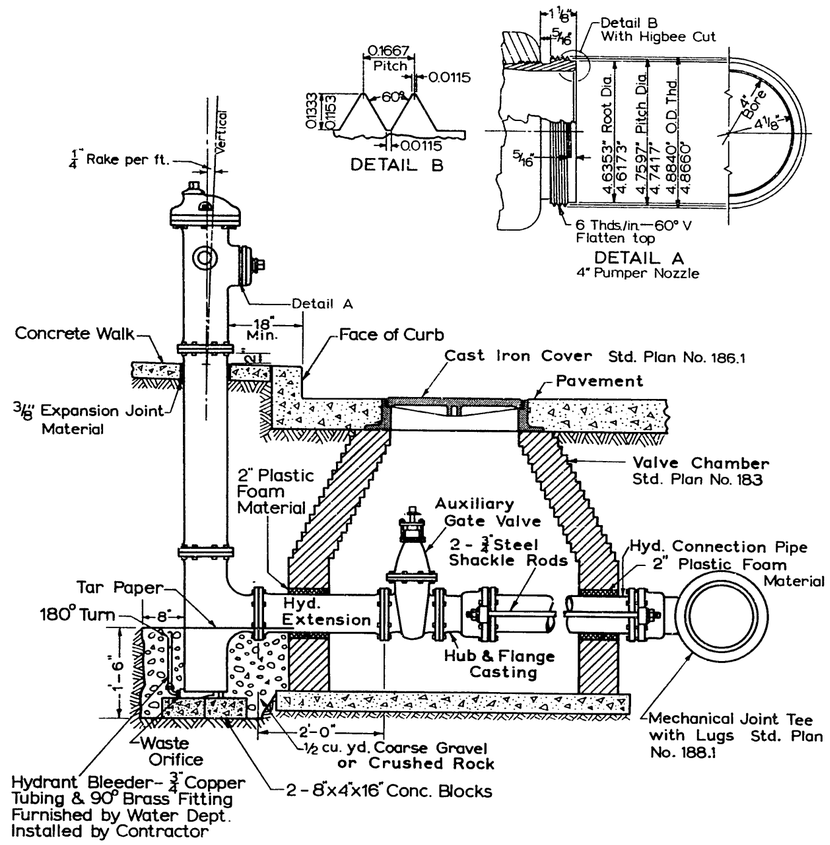
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 180.1 Hydrant Setting - Residential

APPROVED BY THE BOARD OF PUBLIC WORKS
7-8-70 — CHAIRMAN
ATTEST: — SECRETARY

Standard Plan No.181



All fire hydrant threaded nipples such as the 2 1/2 in. discharge ports and the 4 in. pumper nozzle shall be equipped with the blunt start or Higbee Cut.

The 2 1/2 in. nipples shall be in accordance with the National Fire Protection Association Bulletin No. 194, dated 1963.

Hydrant tees shall be set horizontally—connection shall be level.

DO NOT SCALE

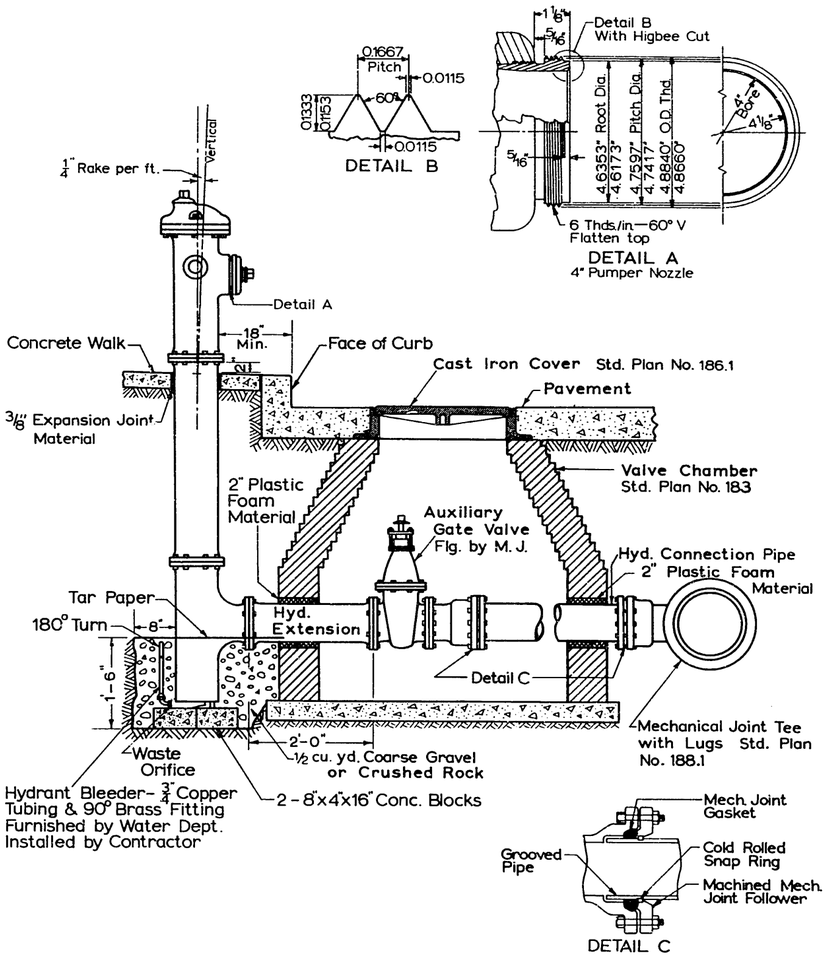
Revised 5-1-70
Revised 4-5-67
Revised 1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 181 Hydrant Setting - Business Dist.

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964
CHAIRMAN
ATTEST: SECRETARY

Standard Plan No.181.1



All fire hydrant threaded nipples such as the 2 1/2 in. discharge ports and the 4 in. pumper nozzle shall be equipped with the blunt start or Higbee Cut.

The 2 1/2 in. nipples shall be in accordance with the National Fire Protection Association Bulletin No. 194, dated 1963.

Hydrant tees shall be set horizontally—connection shall be level.

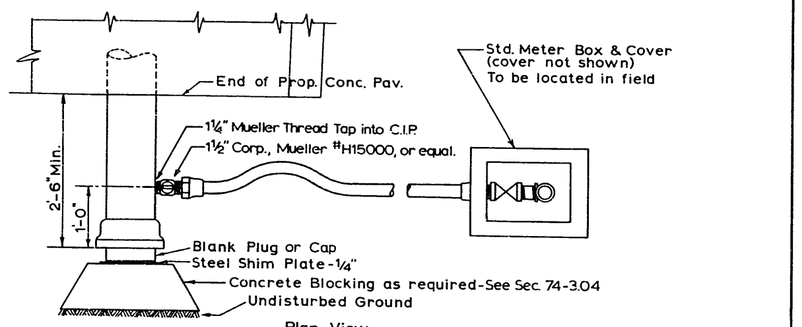
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

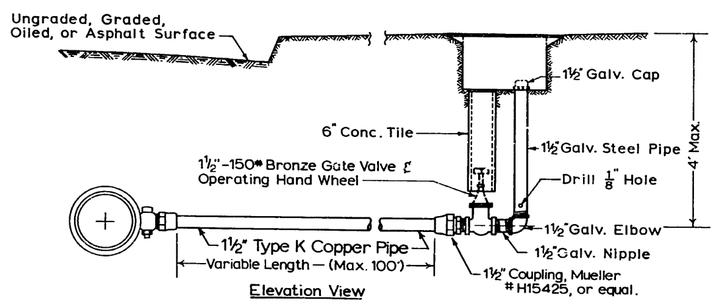
Type 181.1 Hydrant Setting - Business Dist.

APPROVED BY THE BOARD OF PUBLIC WORKS
CHAIRMAN
ATTEST: SECRETARY

Standard Plan No.182



Plan View



Elevation View

1½ BLOW-OFF DETAIL FOR C.I.PIPE — 6 INCH AND LARGER

FOR 4" PIPE use 1"x1¼" Mueller Thread Corp. # H10003 ℄ 1¼ I.P. to 1½ Copper Adapter #15450.

DO NOT SCALE

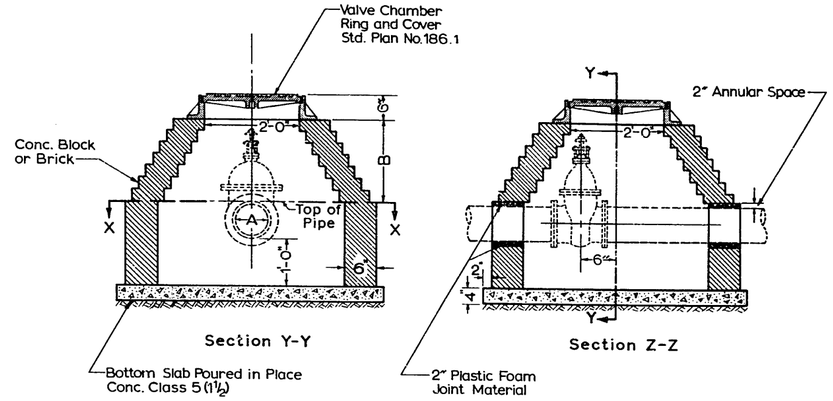
Revised	4-5-67
Revised	1-6-65

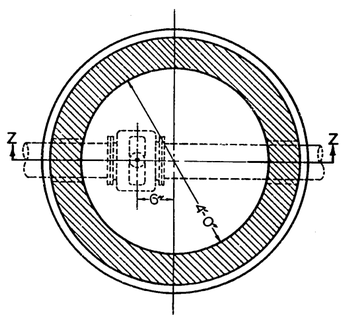
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

1½ inch Blow-off Assembly

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No.183





When "A" Pipe Dia. is 4", 6", or 8"
"B" = 2'-0" Min.

When "A"-Pipe Dia. is 12"
"B" = 2'-8" Min.

DO NOT SCALE

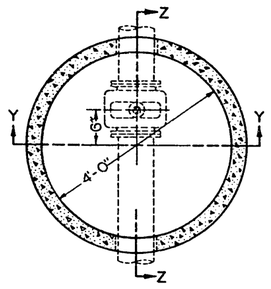
Revised	5-1-70
Revised	4-5-67
Revised	1-6-65

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

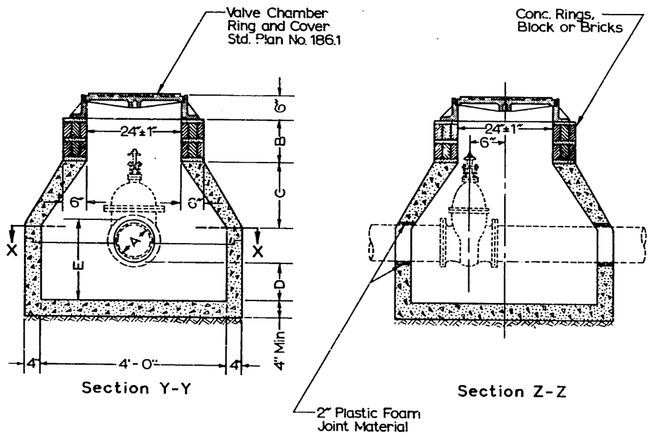
Type 183 Valve Chamber-
Masonry Construction

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No. 184



Section X-X



Section Y-Y

Section Z-Z

Concrete - Compressive strength 3000 p.s.i. at 28 days.

When "A"-Pipe Dia. is 4", 6", or 8"
"B"=6" Min.
"C"=1'-4" Max.
"D"=10" Min.
"E"=1'-9" Max.

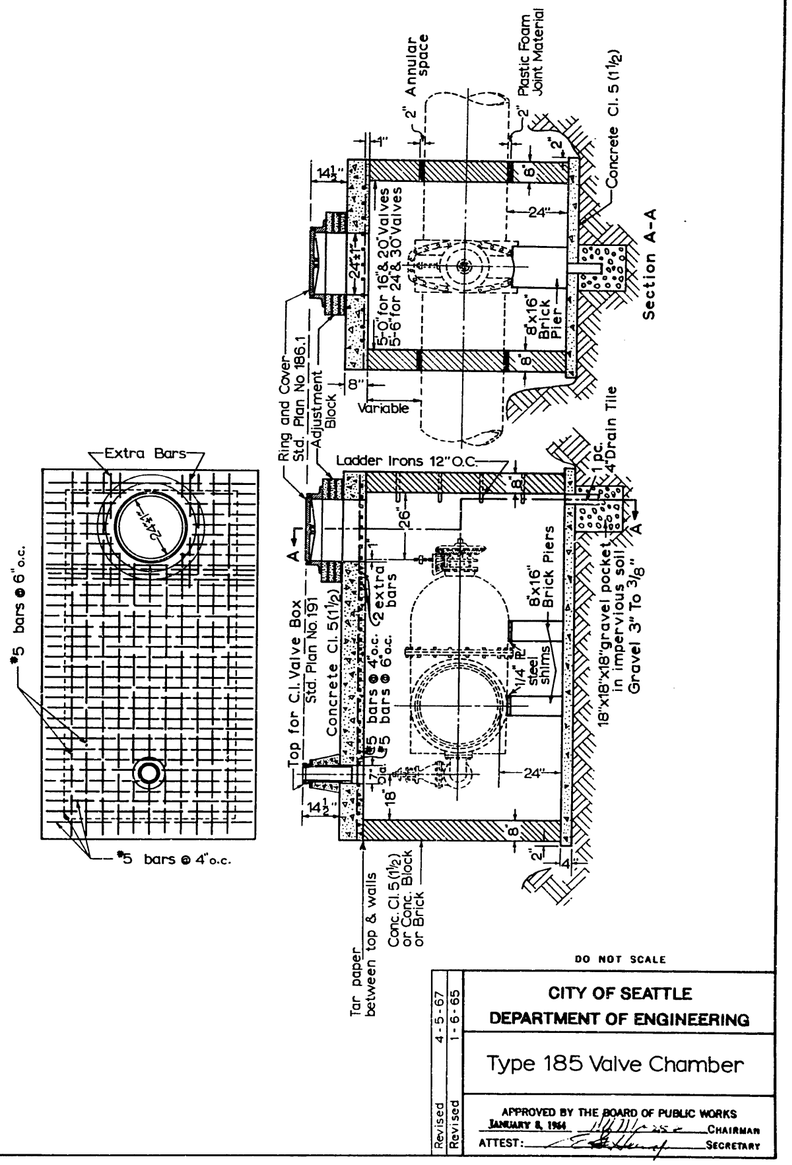
When "A"-Pipe Dia. is 12"
"B"=1'-2" Min.
"C"=2'-1" Max.
"D"=12" Min.
"E"=2'-3" Max.

DO NOT SCALE

Revised	5-1-70	CITY OF SEATTLE
Revised	4-5-67	DEPARTMENT OF ENGINEERING
Revised	1-6-65	Type 184 Valve Chamber-Precast

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No. 185

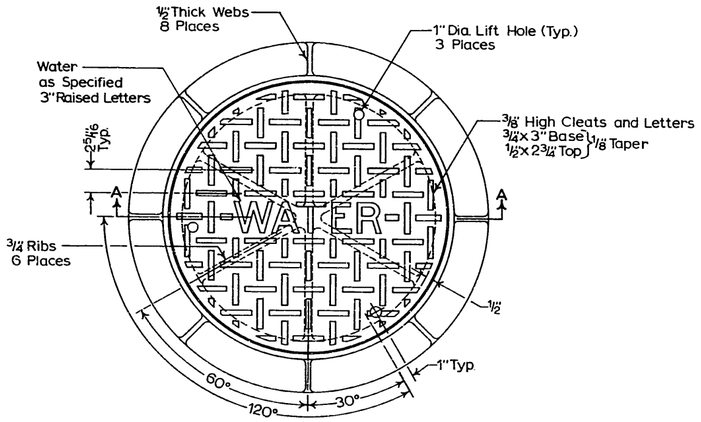


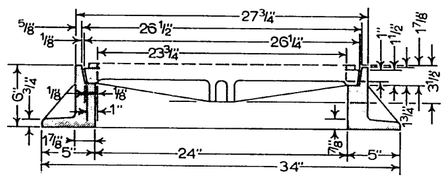
DO NOT SCALE

Revised	4-5-67	CITY OF SEATTLE
Revised	1-6-65	DEPARTMENT OF ENGINEERING
		Type 185 Valve Chamber

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No. 186.1





Section A-A

Ring and Cover shall be tested for accuracy of fit and shall be marked in sets for delivery. See Std. Specs. Sec. 113.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63-2.08.

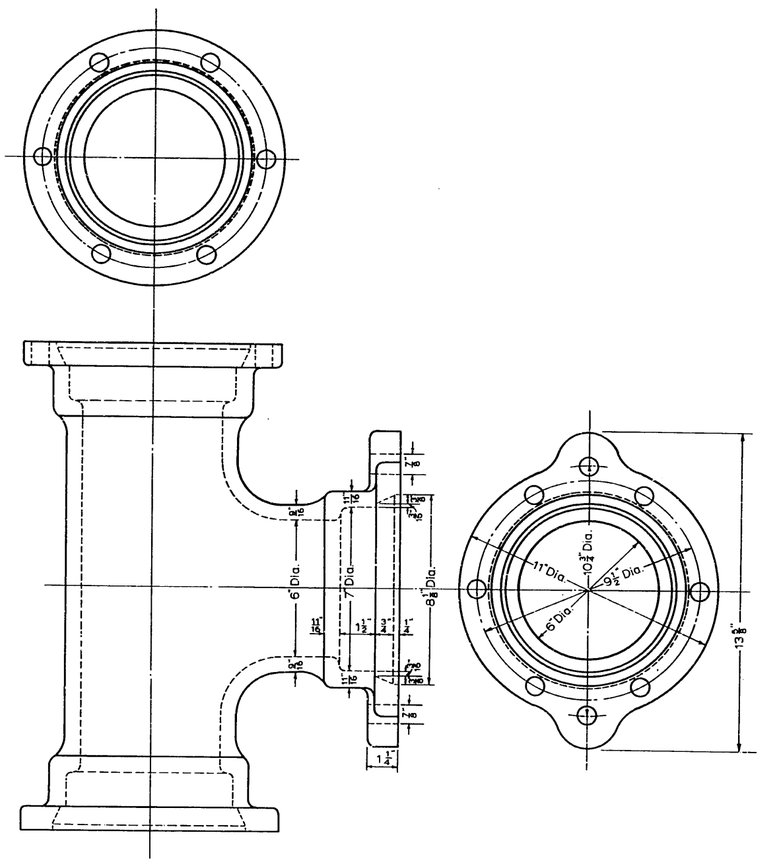
DO NOT SCALL

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Type 186.1-24 Inch Valve Chamber Ring and Cover

APPROVED BY THE BOARD OF PUBLIC WORKS
_____,19____ CHAIRMAN
ATTEST:_____ SECRETARY

Standard Plan No. 188.1



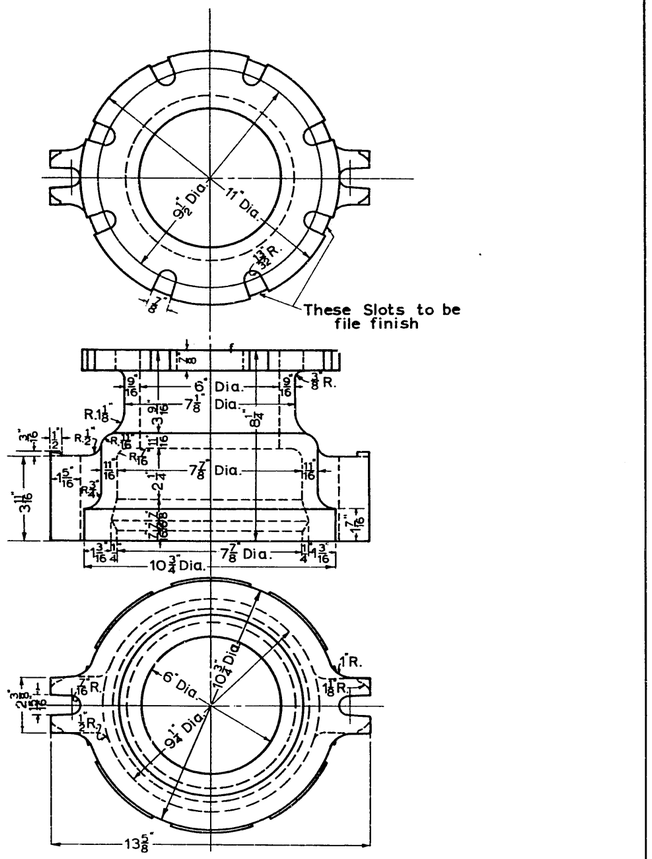
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Mechanical Joint Hydrant Tee

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST:_____ SECRETARY

Standard Plan No.189



Approximate Weight 70 lbs.

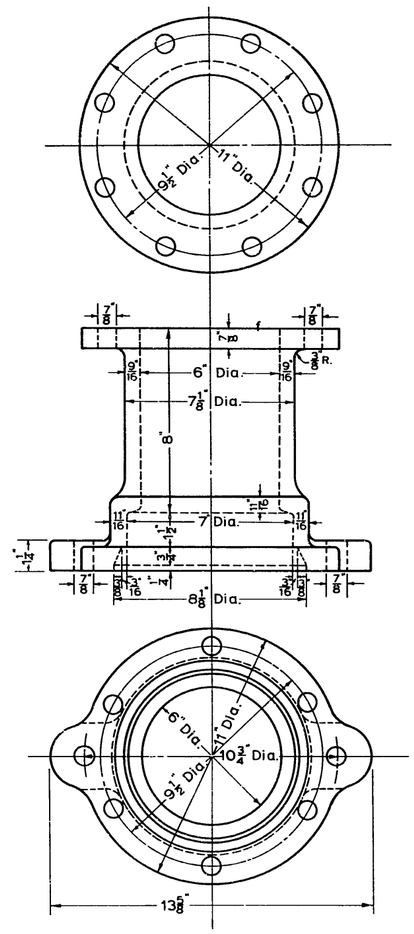
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

6 Inch Hub and Flange Shackled

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No.190



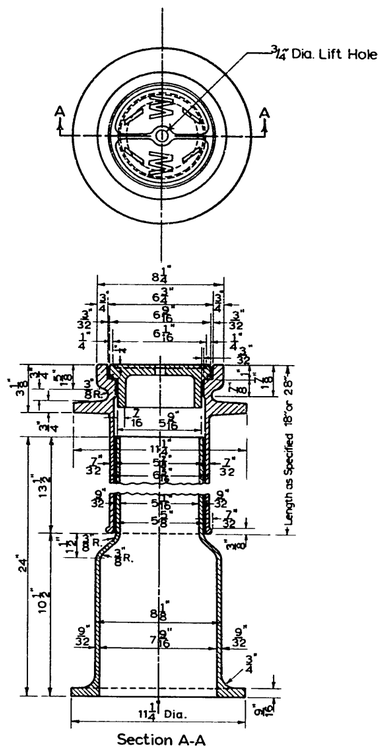
DO NOT SCALE

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

6 Inch Hub and Flange Mechanical Joint

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No. 191



Section A-A

Extension Piece

Frame and Cover shall be tested for accuracy of fit and shall be marked in sets for delivery. See Std. Specs. Sec. 113.

All Castings to have a bituminous coating according to Std. Specs. Sec. 63.208.

DO NOT SCALE

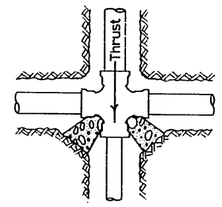
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Cast Iron Valve Box

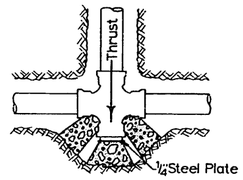
Revised 1-6-65

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

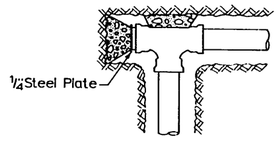
Standard Plan No. 192



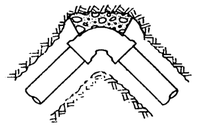
Unbalanced Cross



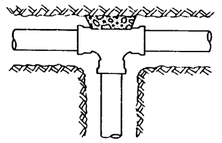
Cross with Shackled Plug



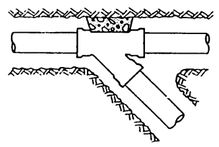
Plugged Tee



Horizontal Bend



Tee



Y Branch

All Blocking to be Concrete Cl. 5 ($1\frac{1}{2}$)

Location and Size of Blocking as deterrnined by the City Engineer.

All Blocking to bear against undisturbed native ground.

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CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

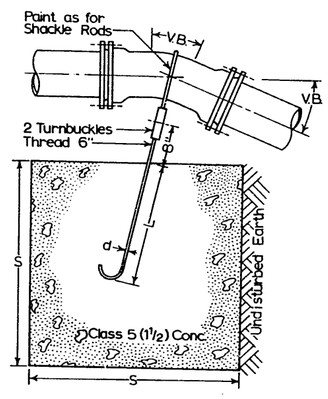
Concrete Blocking - General

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Type "A" Blocking
for 11¼°-22½°-30° Vertical Bends

Pipe Size Nom. Diameter-Inches	Test Pressure psi	V.B. Vertical Bend Degrees	No. of cu. ft. of Conc. Blocking	S Side of Cube feet	d Diameter of Shackle Rods (2) inches	L Depth of Rods in Concrete feet
4"	300	11¼	8	2	¾	1.5
		22½	11	2.2		2.0
		30	17	2.6		
6"	300	11¼	11	2.2	¾	2.0
		22½	25	2.9		
		30	41	3.5		
8"	300	11¼	16	2.5	¾	2.0
		22½	47	3.6		
		30	70	4.1	¾	2.5
12"	250	11¼	32	3.2	¾	2.0
		22½	88	4.5	⅞	3.0
		30	132	5.1		
16"	225	11¼	70	4.1	⅞	3.0
		22½	184	5.7	1⅛	4.0
		30	275	6.5	1¼	
20"	200	11¼	91	4.5	⅞	3.0
		22½	225	6.1	1¼	4.0
		30	330	6.9	1⅜	4.5
24"	200	11¼	128	5.0	1"	3.5
		22½	320	6.8	1⅜	4.5
		30	480	7.9	1⅝	5.5

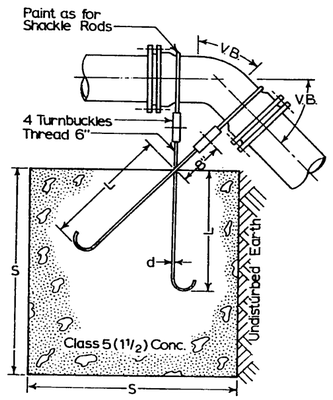
Type A Blocking
for 11¼°-22½°-30° Vertical Bends



Type "B" Blocking
for 45° Vertical Bends

Pipe Size Nom. Diameter-Inches	Test Pressure psi	V.B. Vertical Bend Degrees	No. of cu. ft. of Conc. Blocking	S Side of Cube feet	d Diameter of Shackle Rods (4) inches	L Depth of Rods in Concrete feet
4"	300	45	30	3.1	¾	2.0
6"			68	4.1		
8"			123	5.0		
12"	250		232	6.1	¾	2.5
16"	225		478	7.8	1⅛	4.0
20"	200		560	8.2	1¼	
24"			820	9.4	1⅜	4.5

Type B Blocking
for 45° Vertical Bends



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Revised 4-5-67

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Blocking for Convex Vertical Bends

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 _____ CHAIRMAN
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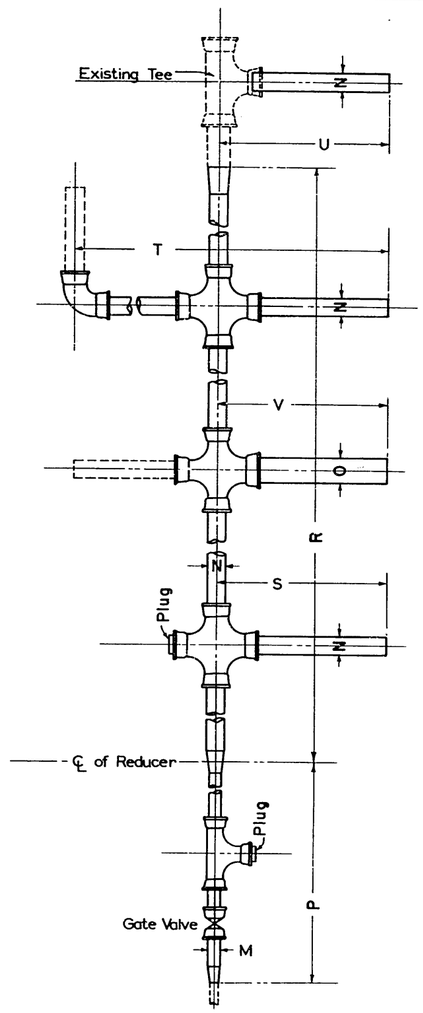

Payment will be made for
P- linear feet of pipe of diameter "M"
R,-S,-T, & U- linear feet of pipe of diameter "N"
V- linear feet of pipe of diameter "O"
See Specifications for Details and for Alternate Method.

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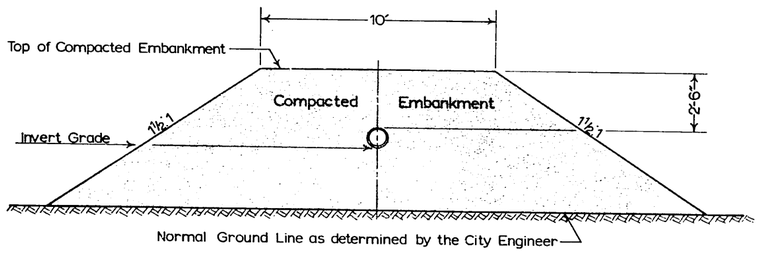
Revised 4-5-67

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Watermain Payment Diagram

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 _____ CHAIRMAN
ATTEST: _____ SECRETARY

Standard Plan No. 195



Watermains Constructed in Fill

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CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Watermain
Construction Detail

Revised 1-6-65

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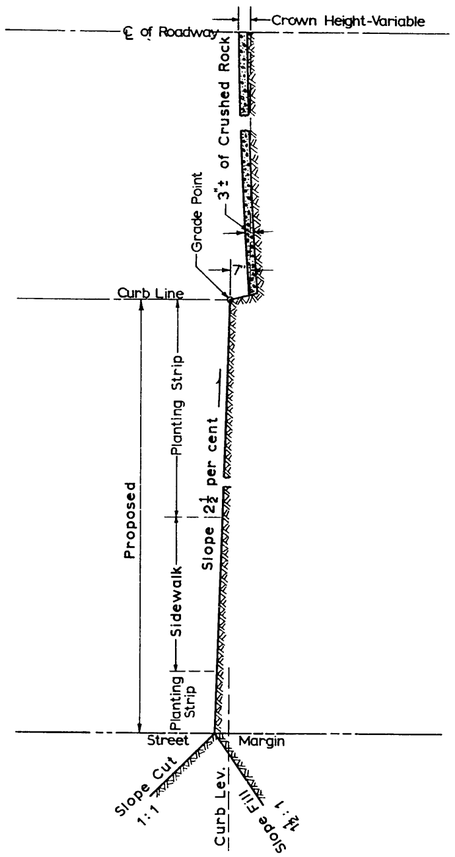
JANUARY 8, 1964 CHAIRMAN
ATTEST: SECRETARY

Standard Plan No. 200



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CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Half Section Grading

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 CHAIRMAN
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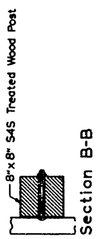
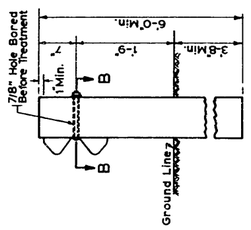
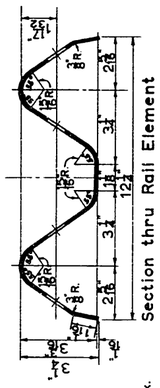
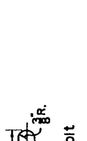
Standard Plan No. 201

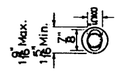


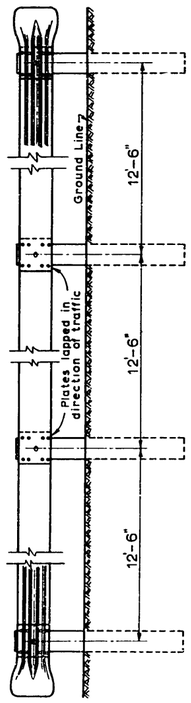


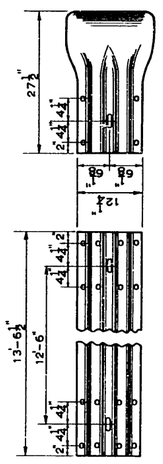
Wood Post
See Std. Specs. Sec. 36-2.02A



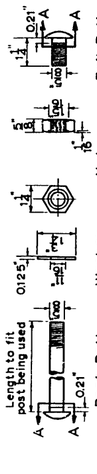








Terminal Plate Detail
See Std. Specs. Sec. 36-2.01



Rail to have three coats of white paint. See Std. Specs. Sec. 116.

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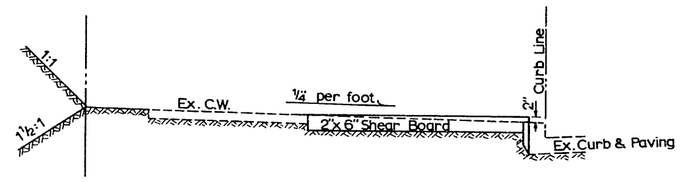
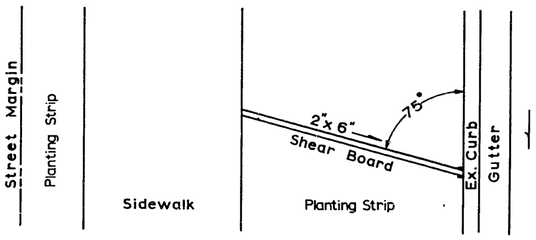
Revised 5-1-70	CITY OF SEATTLE DEPARTMENT OF ENGINEERING
	Beam Guard Rail
	APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 _____ CHAIRMAN ATTEST: _____ SECRETARY

Standard Plan No.206





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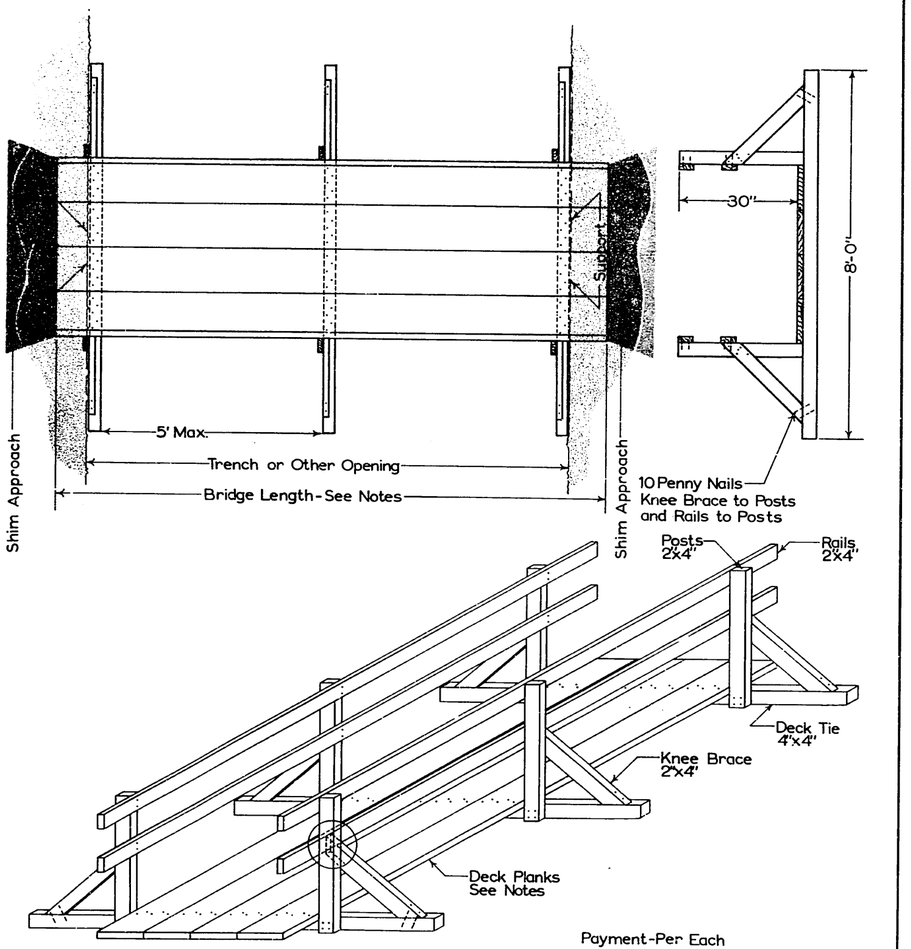
CITY OF SEATTLE DEPARTMENT OF ENGINEERING
Shear Board Installation
APPROVED BY THE BOARD OF PUBLIC WORKS JANUARY 8, 1964 _____ CHAIRMAN ATTEST: _____ SECRETARY

Standard Plan No.207



Payment-Per Each

Lumber - Construction Grade - S4S. See Std. Specs. Sec. 114.
Deck Tie, Knee Brace, Posts and Rails ____ S4S
Deck Planks ____ Rough

All surfaces to have three coats of white paint. See Std. Specs. Sec. 116.

Bridge Length	Plank Size	Nails to Deck Tie
8'-12'	2"x 12"	50d
13'-16'	3"x 12"	60d
17'-20'	4"x 12"	60d

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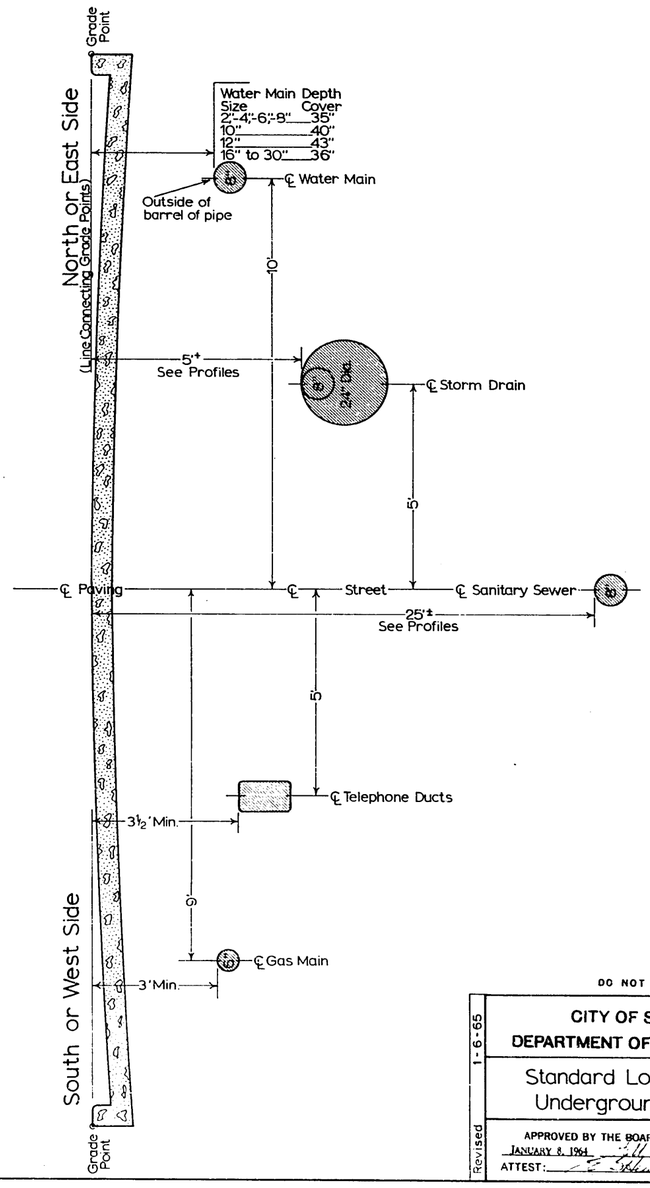
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Temporary Pedestrian Crossing

Revised 4-5-67

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 6, 1964 ____ CHAIRMAN
ATTEST: ____ SECRETARY

Standard Plan No.209



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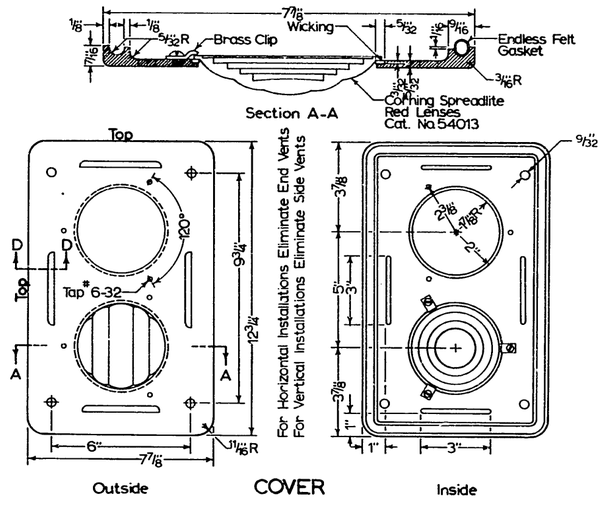
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

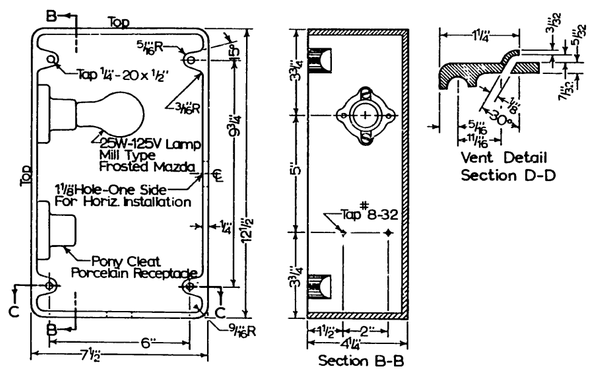
Standard Locations for Underground Utilities

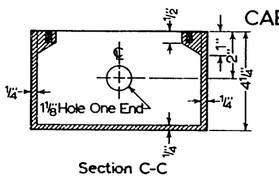
Revised 1-6-65

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 ____ CHAIRMAN
ATTEST: ____ SECRETARY

Standard Plan No.212







Material - Cast Iron

For Installation See Std. Plan No. 212.1

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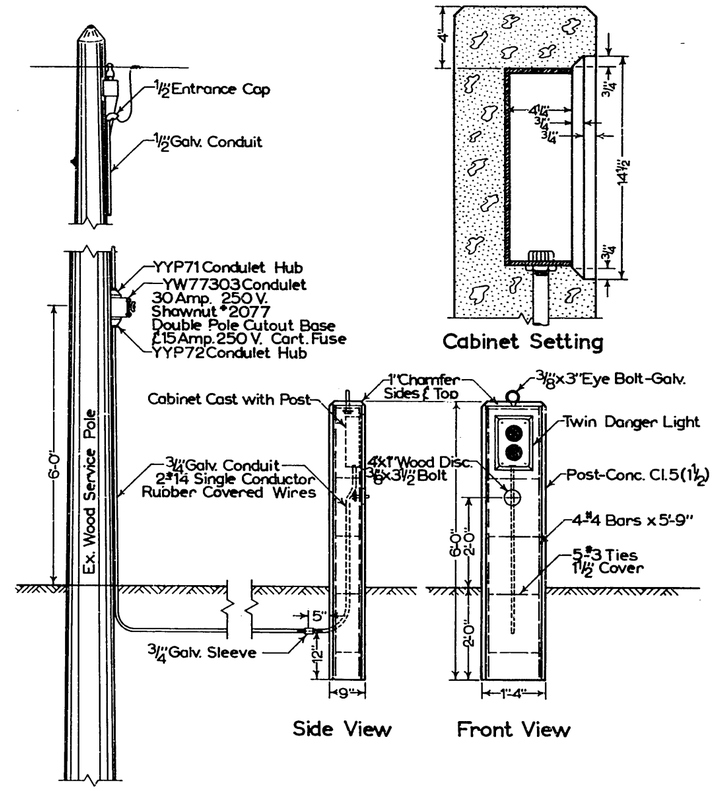
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Twin Danger Light

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 — CHAIRMAN
ATTEST: — SECRETARY

Standard Plan No.2121



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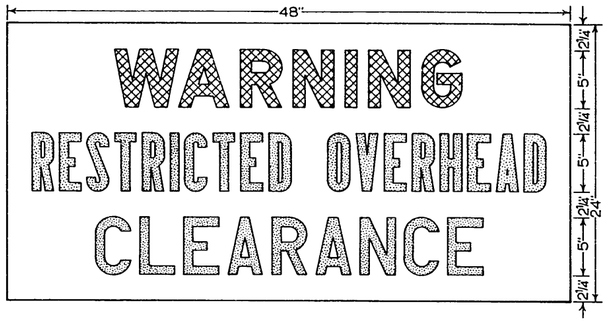
CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Twin Danger Light Installation

APPROVED BY THE BOARD OF PUBLIC WORKS
JANUARY 8, 1964 — CHAIRMAN
ATTEST: — SECRETARY



= Red

= White Background

= Black

NOTES:

The Contractor shall erect restricted overhead clearance signs for the benefit of railway traffic when they are called for in the special provisions. These signs shall be fully reflectorized.

In general, the signs shall be erected as a protection when the vertical clearance will be restricted to less then 22'-6", measured from the top of the highest rail.

The signs shall be mounted on the outside face of the falsework at the center of the span over the tracks and above the restricted overhead clearance line.

All cost for the furnishing, erection and dismounting of the signs shall be considered as incidental to the improvement and no separate payment will be made.

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CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Restricted Overhead Clearance Sign

Revised 5-1-70

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Abbreviations

Aban——Abandon
Adj——Adjust
AV——Air Valve
Asph——Asphalt
AW——Asphalt Walk
Avg——Average
CIP——Cast Iron Pipe
CB——Catch Basin
℄——Center Line
Conc——Concrete
CC——Concrete Culvert
CW——Concrete Walk
Cond——Conduit
Cond——Connect
CMP——Corrugated Metal Pipe
Cr——Cross
C&G——Curb and Gutter
CR——Curb Radius
Dwy——Driveway
DIP——Ductile Iron Pipe
ECb——Electrical Cable
ECd——Electrical Conduit
ED——Electrical Duct
EMH——Electrical Manhole
EV——Electrical Vault
Elev——Elevation
Ex——Existing
FM——Force Main
GIP——Galvanized Iron Pipe
GSP——Galvanized Steel Pipe
G——Gas
GM——Gas Meter
GV——Gate Valve
GP——Guy Pole
HH——Handhole
HPG——High Pressure Gas
Hyd——Hydrant
Inl——Inlet
IP——Iron Pipe
LIT——Large Inlet Top
LP——Light Pole
Loc——Location; Locate
MH——Manhole
MVL——Mercury Vapor Luminaire
M——Monument Line
Pav——Pavement
PS——Pipe Sewer Combined
PSS——Pipe Sewer Sanitary
PSD——Pipe Storm Drain
PP——Power Pole
℄——Property Line
Prop——Proposed
Reconn——Reconnect
Red——Reducer
RCP——Reinforced Concrete Pipe
Reloc——Relocate
Rem——Remove
R&R——Remove and Replace
Repl——Replace
SB——Sand Box
SD——Service Drain
SS——Side Sewer Combined
SSS——Side Sewer Sanitary
Sl——Sleeve
Std——Standard
St P——Steel Pipe
T——Tee
TCb——Telephone Cable
TCd——Telephone Conduit
TD——Telephone Duct
TMH——Telephone Manhole
TP——Telephone Pole
TV——Telephone Vault
Temp——Temporary
TH——Test Hole
TrSB——Traffic Signal Box
TrSP——Traffic Signal Pole
VCH——Valve Chamber
VC——Vertical Curve
W——Water Main
WM——Water Meter

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DEPARTMENT OF ENGINEERING

Abbreviations

APPROVED BY THE BOARD OF PUBLIC WORKS
7-__-19__ _____ CHAIRMAN
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Standard Plan No. 216

ITEM	TO BUILD	EXISTING
Concrete Pavement	6"Conc. Pav.	Ex.6"Conc. Pav
Concrete Sidewalk	C.W.	
Grading	To be Graded	Graded
Manhole	MH#	
Inlet Type 165		
Inlet Type 166		Existing Inlet Type 164 Except as Noted
Catch Basin Type 151		
Catch Basin Type 153		
Catch Basin Type 171A		
Catch Basin Type 171B		
Pipe Sewer Combined	12"PS	12"PS
Pipe Sewer Sanitary	12"PSS	12"PSS
Pipe Storm Drain	12"PSD	12"PSD
Side Sewer Combined		SS
Side Sewer Sanitary		SSS
Service Drain		SD
Culvert	12"CC	12"CC
Sandbox		SB
Watermain	8"W and Smaller / 12"W and Larger	8"W and Smaller / 12"W and Larger
Hydrant		
Gate Valve	8"	
Gate Valve with Chamber	6"	
Bend	8"-11°	
Cross	8"x8"x6"x6"	
Tee	8"x6"x6"	
Reducer	8"to 4"	
Air Valve	AV	AV
Water Meter	WM	WM
Easement	Esmt to be Acq'd	Esmt

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CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Standard Symbols

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ATTEST: _____ SECRETARY

Standard Plan No.216.1

ITEM	TO BUILD	EXISTING
Electrical Cable		2"ECb
Electrical Conduit		1"ECd
Electrical Duct		12"x12"ED
Combined Elect. & Tel. Duct		12"x12"ED-TD
Traffic Conduit		2"TCd
Wood Power Pole		
Power Pole with Anchor		
Power Pole with Luminaire		
Metal Pole with Luminaire		
Steel Traffic Signal Pole		
Steel Traffic Signal Pole Combined with Luminaire		
Handhole	HH	HH
Traffic Signal Control	TSC	TSC
Telephone Cable		1"TCb
Telephone Conduit		2"TCd
Telephone Duct		12"x12"TD
Gas Main		12"G
Gas Valve		
Gas Valve with Chamber		
Gas Meter		GM
Monument		
Brass Plug		
Centerline		℄
Monument Line		M
Hub		△
Survey Line		Survey Line
Existing Ground		Ex.Ground
Proposed Grade		Prop.Grade
Construction Centerline		Const ℄
Test Hole and Number		TH-1

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CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Standard Symbols

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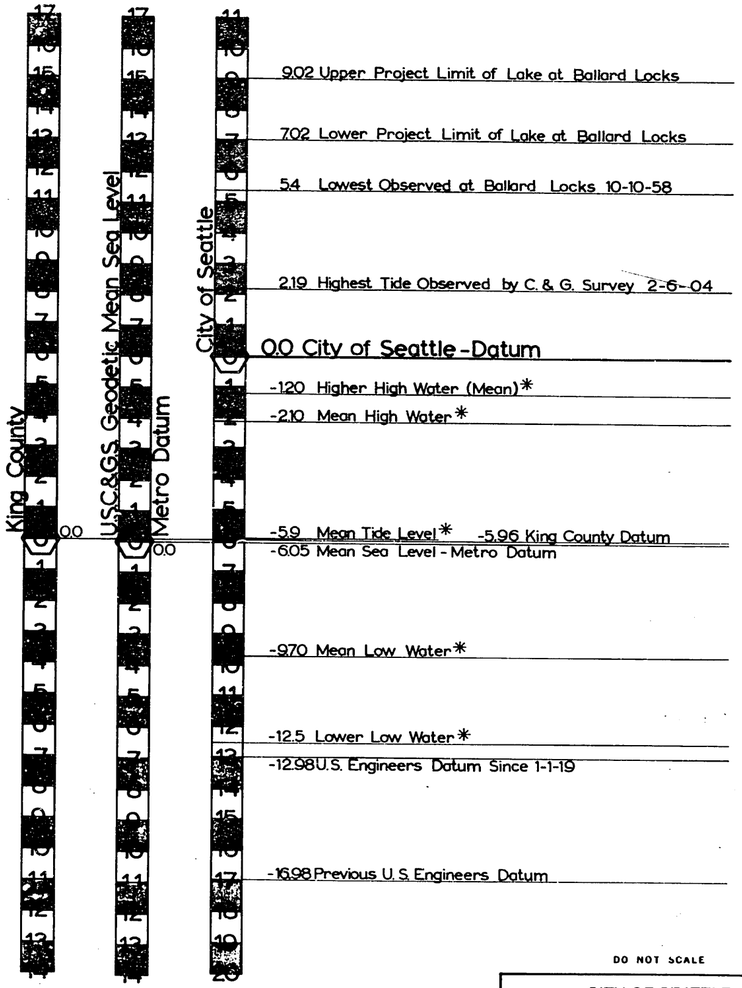
Standard Plan No.217



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* These elevations vary according to tidal observation.
For the latest figures call the U.S.C.G.S. Office

CITY OF SEATTLE
DEPARTMENT OF ENGINEERING

Elevations and Datums
11-13-62

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